PHONE

SPACEX

## In other news

Reusability: The key to making life more inter-planetary

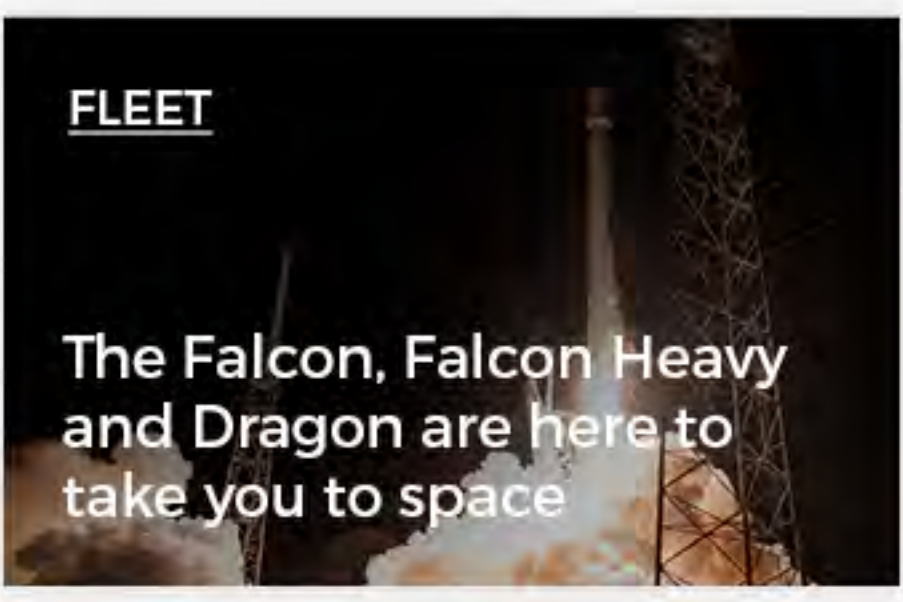
Commercial Crew: Taking austronauts to space

JSAT-16 Mission: A resounding success

BLOG OF THE WEEK

## Are aliens real?

Tim Urban from waitbutwhy.com explains with the Kardeshev Scale, Fermi Paradox and the




## Sign up for our Newsletter

Keep yourself up to date with all things space and SpaceX, get specialized for news for Students, Enthusiasts and Professionals

elonmusk@spacex.com

○ Student ○ Enthusiast ○ Pro

SIGN UP

SHOP

Shop the Team colors!

Get Sweatshirts, T-shirts and accessories with free shipping!

Fleet

About

News

Launch Manifest

Shop

2016 © Space Exploration Technologies Corp.

PHONE

SPACEX

## In other news

Reusability: The key to making life more inter-planetary

Commercial Crew: Taking austronauts to space

JSAT-16 Mission: A resounding success

BLOG OF THE WEEK

### Are aliens real?

Tim Urban from waitbutwhy.com explains with the Kardeshev Scale, Fermi Paradox and the

## Sign up for our Newsletter

Keep yourself up to date with all things space and SpaceX, get specialized for news for Students, Enthusiasts and Professionals

elonmusk@spacex.com

○ Student ○ Enthusiast ○ Pro

SIGN UP

SHOP

Shop the Team colors!

Get Sweatshirts, T-shirts and accessories with free shipping!

Fleet

About

News

Launch Manifest

Shop

2016 © Space Exploration Technologies Corp.

PHONE

SPACEX

## In other news

Reusability: The key to making life more inter-planetary

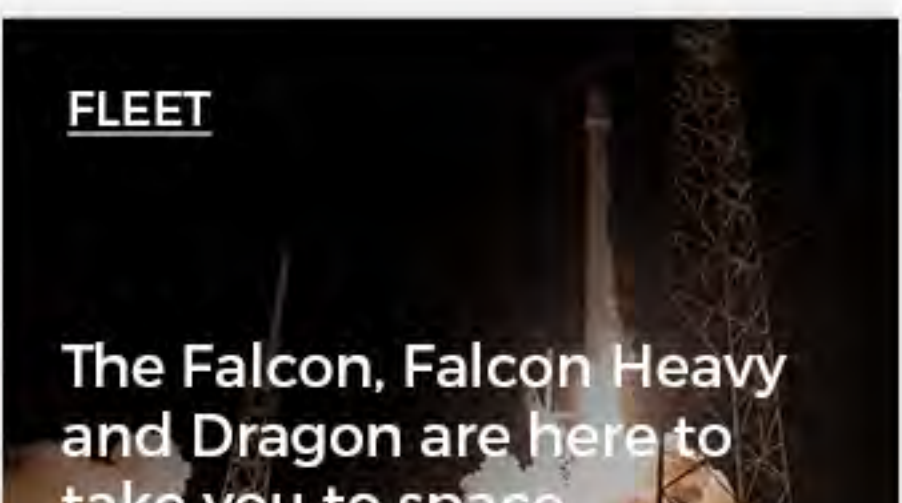
Commercial Crew: Taking austronauts to space

JSAT-16 Mission: A resounding success

BLOG OF THE WEEK

## Are aliens real?

Tim Urban from waitbutwhy.com explains with the Kardeshev Scale, Fermi Paradox and the




## Sign up for our Newsletter

Keep yourself up to date with all things space and SpaceX, get specialized for news for Students, Enthusiasts and Professionals

elonmusk@spacex.com

○ Student ○ Enthusiast ○ Pro

SIGN UP

SHOP

Shop the Team colors!

Get Sweatshirts, T-shirts and accessories with free shipping!



2016 © Space Exploration Technologies Corp.

PHONE

SPACEX

Fleet
About
News
Launch Manifest
Shop

## In other news

Reusability: The key to making life more inter-planetary

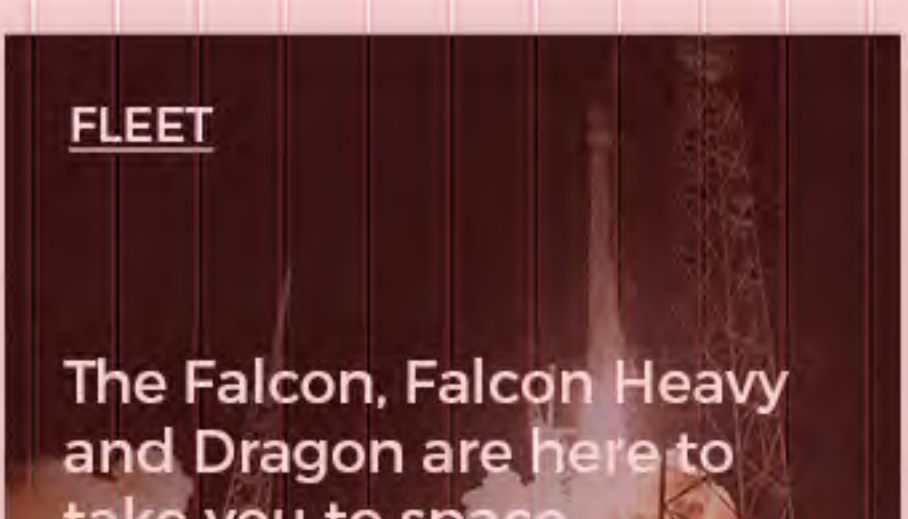
Commercial Crew: Taking austronauts to space

JSAT-16 Mission: A resounding success

BLOG OF THE WEEK

## Are aliens real?

Tim Urban from waitbutwhy.com explains with the Kardeshev Scale, Fermi Paradox and the




## Sign up for our Newsletter

Keep yourself up to date with all things space and SpaceX, get specialized for news for Students, Enthusiasts and Professionals

elonmusk@spacex.com

○ Student ○ Enthusiast ○ Pro

SIGN UP

SHOP

Shop the Team colors!

Get Sweatshirts, T-shirts and accessories with free shipping!

Fleet
About
News
Launch Manifest
Shop

2016 © Space Exploration Technologies Corp.

TABLET

SPACEX Fleet About News Launch Manifest Shop

## In other news

Reusability: The key to making life more inter-planetary

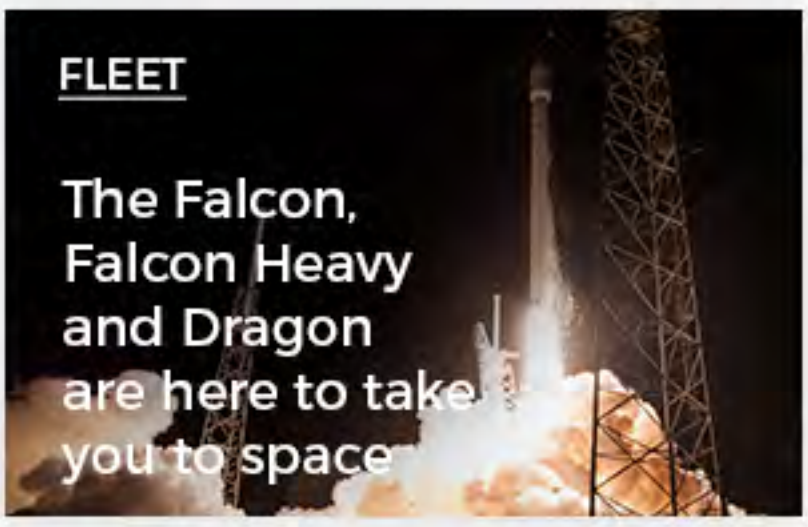
Commercial Crew: Taking austronauts to space

JSAT-16 Mission: A resounding success

BLOG OF THE WEEK

## Are aliens real?

Tim Urban from waitbutwhy.com explains with the Kardeshev Scale, Fermi Paradox and the




## Sign up for our Newsletter

Keep yourself up to date with all things space and SpaceX, get specialized news for Students, Enthusiasts and

elonmusk@spacex.com

○ Student ○ Enthusiast ○ Pro

SIGN UP


## Shop the Team colors!

Get Sweatshirts, T-shirts and accessories with free shipping!

SHOP

2016 © Space Exploration Technologies Corp.

TABLET



# We're going to Mars

The Interplanetary Transport System will combine the most powerful rocket ever built with a spaceship designed to carry at least 100 people to the Red Planet per flight, Elon Musk reveals at the International Astronautical Congress in Guadalajara. See more.

## In other news

Reusability: The key to making life more inter-planetary

Commercial Crew: Taking austronauts to space

JSAT-16 Mission: A resounding success

BLOG OF THE WEEK

## Are aliens real?

Tim Urban from waitbutwhy.com explains with the Kardeshev Scale, Fermi Paradox and the

LAUNCH MANIFEST

Next Launch:
4th December
Falcon 9
SKY SAT Japan

ABOUT

SpaceX creates reuseable rockets and spaceships

FLEET

The Falcon, Falcon Heavy and Dragon are here to take you to space

## Sign up for our Newsletter

Keep yourself up to date with all things space and SpaceX, get specialized news for Students, Enthusiasts and

elonmusk@spacex.com

○ Student ○ Enthusiast ○ Pro

SIGN UP

## Shop the Team colors!

Get Sweatshirts, T-shirts and accessories with free shipping!

SHOP

2016 © Space Exploration Technologies Corp.

DESKTOP



# We're going to Mars

The Interplanetary Transport System will combine the most powerful rocket ever built with a spaceship designed to carry at least 100 people to the Red Planet per flight, Elon Musk reveals at the International Astronautical Congress in Guadalajara. See more.

## In other news

Reusability: The key to making life more inter-planetary

Commercial Crew: Taking austronauts to space

JSAT-16 Mission: A resounding success

BLOG OF THE WEEK

## Are aliens real?

Tim Urban from waitbutwhy.com explains with the Kardeshev Scale, Fermi Paradox and the

## Sign up for our Newsletter

Keep yourself up to date with all things space and SpaceX, get specialized news for Students, Enthusiasts and Professionals

elonmusk@spacex.com

○ Student ○ Enthusiast ○ Pro

SIGN UP


## Shop the Team colors!

Get Sweatshirts, T-shirts and accessories with free shipping!

SHOP

2016 © Space Exploration Technologies Corp.

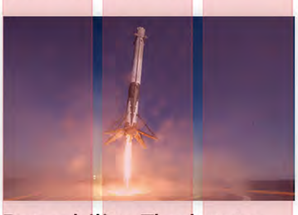
DESKTOP



# We're going to Mars

The Interplanetary Transport System will combine the most powerful rocket ever built with a spaceship designed to carry at least 100 people to the Red Planet per flight, Elon Musk reveals at the International Astronautical Congress in Guadalajara. See more.

## In other news



Reusability: The key to making life more inter-planetary

Commercial Crew: Taking austronauts to space

JSAT-16 Mission: A resounding success

BLOG OF THE WEEK

### Are aliens real?

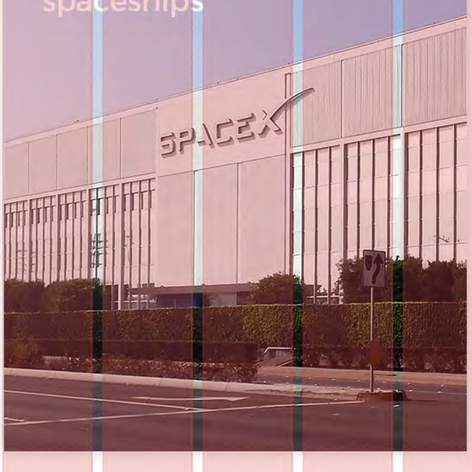
Tim Urban from waitbutwhy.com explains with the Kardeshev Scale, Fermi Paradox and the

LAUNCH MANIFEST

### Next Launch: 4th December Falcon 9 SKY SAT Japan

ABOUT

### SpaceX creates reuseable rockets and spaceships




FLEET

### The Falcon, Falcon Heavy and Dragon are here to take you to space

## Sign up for our Newsletter

Keep yourself up to date with all things space and SpaceX, get specialized news for Students, Enthusiasts and Professionals

elonmusk@spacex.com

○ Student ○ Enthusiast ○ Pro

SIGN UP

## Shop the Team colors!

Get Sweatshirts, T-shirts and accessories with free shipping!

SHOP

2016 © Space Exploration Technologies Corp.

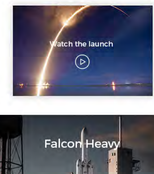
PHONE

SPACEX

# Falcon 9

| | |
|---|---|
| 70m \| 229.6 ft<br>HEIGHT | 549,054 kg \| 1,207,920 lb<br>WEIGHT |
| 22,800kg \| 50,265 lb<br>PAYLOAD TO LEO | 4,020kg \| 8,860lb<br>PAYLOAD TO MARS |
| 8,300kg \| 18,300 lb<br>PAYLOAD TO GTO | 934kN \| 210,000 lbf<br>THRUST |
| 3.7m \| 12 ft<br>DIAMETER | 397sec<br>BURN TIME |
| 1<br>ENGINE | 2<br>STAGES |

Falcon 9 is a two-stage rocket designed and manufactured by SpaceX for the reliable and safe transport of satellites and the Dragon spacecraft into orbit. As the first rocket completely developed in the 21st century, Falcon 9 was designed from the ground up for maximum reliability. Falcon 9's simple two-stage configuration minimizes the number of separation events and with three first-stage engines, it can safely complete its mission even in the event of an engine shutdown. Falcon 9 is launching on 4th December.




# Falcon Heavy

| | |
|---|---|
| 70m \| 229.6 ft<br>HEIGHT | 27<br>ENGINES |
| 54,400kg \| 190,930 lb<br>PAYLOAD TO LEO | 13,600kg \| 29,980lb<br>PAYLOAD TO MARS |
| 2<br>STAGES | 2<br>BOOSTER |

| |
|---|
| 24,681kN \| 5,548,500lbf<br>THRUST IN VACCUM |
| 22,819kN \| 5,130,000 lbf<br>THRUST AT SEA LEVEL |

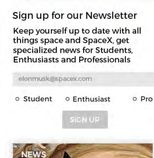
When Falcon Heavy lifts off later this year, it will be the most powerful operational rocket in the world by a factor of two. With the ability to lift into orbit over 54 metric tons (119,000 lb) a mass equivalent to a 737 jetliner loaded with passengers, crew, luggage and fuel it can lift more than twice the payload of the next closest operational vehicle, the Delta IV Heavy, at one-third the cost. Falcon Heavy was designed from the outset to carry humans into space and restores the possibility of flying missions with crew to the Moon or Mars.

# Dragon

| | |
|---|---|
| 70m \| 229.6 ft<br>HEIGHT | 54,400kg \| 190,930 lb<br>PAYLOAD TO LEO |
| 13,600kg \| 29,980lb<br>PAYLOAD TO MARS | 2<br>BOOSTERS |
| 27<br>ENGINES | 2<br>STAGES |

| |
|---|
| 22,819kN \| 5,130,000 lbf<br>THRUST AT SEA LEVEL |
| 24,681kN \| 5,548,500lbf<br>THRUST IN VACCUM |

Dragon is a free-flying spacecraft designed to deliver both cargo and people to orbiting destinations. Dragon made history in 2012 when it became the first commercial spacecraft in history to deliver cargo to the International Space Station and safely return cargo to Earth. Currently Dragon carries cargo to space, but it was designed from the beginning to carry humans. Under an agreement with NASA, SpaceX is now developing the refinements that will enable Dragon to fly crew. Dragon's first manned test flight is expected to take place in 2-3 years.



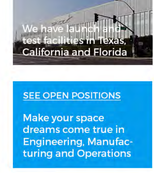

## Sign up for our Newsletter

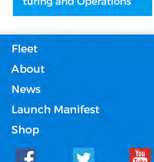
Keep yourself up to date with all things space and SpaceX, get specialized news for Students, Enthusiasts and Professionals

elonmusk@spacex.com

○ Student ○ Enthusiast ○ Pro

SIGN UP




SEE OPEN POSITIONS

Make your space dreams come true in Engineering, Manufacturing and Operations



2016 © Space Exploration Technologies Corp.

PHONE

SPACEX

# Falcon 9

70m | 229.6 ft
HEIGHT

549,054 kg | 1,207,920 lb
WEIGHT

22,800kg | 50,265 lb
PAYLOAD TO LEO

4,020kg | 8,860lb
PAYLOAD TO MARS

8,300kg | 18,300 lb
PAYLOAD TO GTO

934kN | 210,000 lbf
THRUST

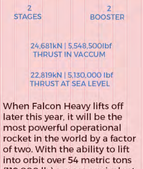
3.7m | 12 ft
DIAMETER

397sec
BURN TIME

1
ENGINE

2
STAGES

Falcon 9 is a two-stage rocket designed and manufactured by SpaceX for the reliable and safe transport of satellites and the Dragon spacecraft into orbit. As the first rocket completely developed in the 21st century, Falcon 9 was designed from the ground up for maximum reliability. Falcon 9's simple two-stage configuration minimizes the number of separation events and with three first-stage engines, it can safely complete its mission even in the event of an engine shutdown. Falcon 9 is launching on 4th December.




# Falcon Heavy

70m | 229.6 ft
HEIGHT

27
ENGINES

54,400kg | 190,910 lb
PAYLOAD TO LEO

13,600kg | 29,980lb
PAYLOAD TO MARS

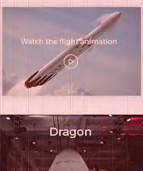
2
STAGES

2
BOOSTER

24,681kN | 5,548,500lbf
THRUST IN VACCUM

22,819kN | 5,130,000 lbf
THRUST AT SEA LEVEL

When Falcon Heavy lifts off later this year, it will be the most powerful operational rocket in the world by a factor of two. With the ability to lift into orbit over 54 metric tons (119,000 lb) a mass equivalent to a 737 jetliner loaded with passengers, crew, luggage and fuel it can lift more than twice the payload of the next closest operational vehicle, the Delta IV Heavy, at one-third the cost. Falcon Heavy was designed from the outset to carry humans into space and restores the possibility of flying missions with crew to the Moon or Mars.




# Dragon

70m | 229.6 ft
HEIGHT

54,400kg | 190,910 lb
PAYLOAD TO LEO

13,600kg | 29,980lb
PAYLOAD TO MARS

2
BOOSTERS

27
ENGINES

2
STAGES

22,819kN | 5,130,000 lbf
THRUST AT SEA LEVEL

24,681kN | 5,548,500lbf
THRUST IN VACCUM

Dragon is a free-flying spacecraft designed to deliver both cargo and people to orbiting destinations. Dragon made history in 2012 when it became the first commercial spacecraft in history to deliver cargo to the International Space Station and safely return cargo to Earth. Currently Dragon carries cargo to space, but it was designed from the beginning to carry humans. Under an agreement with NASA, SpaceX is now developing the refinements that will enable Dragon to fly crew. Dragon's first manned test flight is expected to take place in 2-3 years.

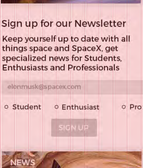
## Sign up for our Newsletter

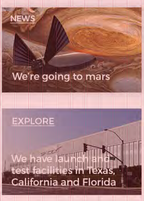
Keep yourself up to date with all things space and SpaceX, get specialized news for Students, Enthusiasts and Professionals

elonmusk@spacex.com

○ Student ○ Enthusiast ○ Pro

SIGN UP




SEE OPEN POSITIONS

Make your space dreams come true in Engineering, Manufacturing and Operations



2016 © Space Exploration Technologies Corp.

TABLET



## Falcon 9

70m | 229.6 ft HEIGHT

549,054 kg | 1,207,920 lb WEIGHT

22,800kg | 50,265 lb PAYLOAD TO LEO

4,020kg | 8,860lb PAYLOAD TO MARS

8,300kg | 18,300 lb PAYLOAD TO GTO

934kN | 210,000 lbf THRUST

3.7m | 12 ft DIAMETER

397sec BURN TIME

1 ENGINE

2 STAGES

Falcon 9 is a two-stage rocket designed and manufactured by SpaceX for the reliable and safe transport of satellites and the Dragon spacecraft into orbit. As the first rocket completely developed in the 21st century, Falcon 9 was designed from the ground up for maximum reliability. Falcon 9's simple two-stage configuration minimizes the number of separation events and with nine first-stage engines, it can safely complete its mission even in the event of an engine shutdown. Falcon 9 is

Learn more about Falcon 9

## Falcon Heavy

70m | 229.6 ft HEIGHT

27 ENGINES

54,400kg | 190,930 lb PAYLOAD TO LEO

13,600kg | 29,980lb PAYLOAD TO MARS

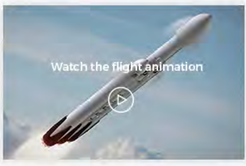
2 STAGES

2 BOOSTER

24,681kN | 5,548,500lbf THRUST IN VACCUM

22,819kN | 5,130,000 lbf THRUST AT SEA LEVEL

When Falcon Heavy lifts off later this year, it will be the most powerful operational rocket in the world by a factor of two. With the ability to lift into orbit over 54 metric tons (119,000 lb) a mass equivalent to a 737 jetliner loaded with passengers, crew, luggage and fuel it can lift more than twice the payload of the next closest operational vehicle, the Delta IV Heavy, at one-third the cost. Falcon Heavy was designed from the outset to carry humans into space and restores the possibility of flying missions with crew to the Moon or Mars.




Learn more about Falcon Heavy

## Dragon

70m | 229.6 ft HEIGHT

54,400kg | 190,930 lb PAYLOAD TO LEO

13,600kg | 29,980lb PAYLOAD TO MARS

2 BOOSTERS

24,681kN | 5,548,500lbf THRUST IN VACCUM

22,819kN | 5,130,000 lbf THRUST AT SEA LEVEL

27 ENGINES

2 STAGES

Dragon is a free-flying spacecraft designed to deliver both cargo and people to orbiting destinations. Dragon made history in 2012 when it became the first commercial spacecraft in history to deliver cargo to the International Space Station and safely return cargo to Earth. Currently Dragon carries cargo to space, but it was designed from the beginning to carry humans. Under an agreement with NASA, SpaceX is now developing the refinements that will enable Dragon to fly crew. Dragon's first manned test flight is expected to take place in 2-3 years.

Learn more about Dragon

### Sign up for our Newsletter

Keep yourself up to date with all things space and SpaceX, get specialized for students, Enthusiasts and Professionals

elonmusk@spacex.com

○ Student ○ Enthusiast ○ Pro

SIGN UP

### ABOUT

We have launch and test facilities in Texas, California and Florida

EXPLORE

### CAREERS

Make your space dreams come true in Enggineering, Manufacturing and Operations

SEE OPEN POSITIONS



2016 © Space Exploration Technologies Corp.

TABLET



## Falcon 9

70m | 229.6 ft HEIGHT

549,054 kg | 1,207,920 lb WEIGHT

22,800kg | 50,265 lb PAYLOAD TO LEO

4,020kg | 8,860lb PAYLOAD TO MARS

8,300kg | 18,300 lb PAYLOAD TO GTO

934kN | 210,000 lbf THRUST

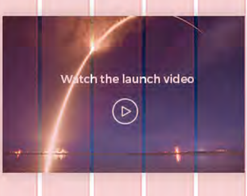
3.7m | 12 ft DIAMETER

397sec BURN TIME

1 ENGINE

2 STAGES

Falcon 9 is a two-stage rocket designed and manufactured by SpaceX for the reliable and safe transport of satellites and the Dragon spacecraft into orbit. As the first rocket completely developed in the 21st century, Falcon 9 was designed from the ground up for maximum reliability. Falcon 9's simple two-stage configuration minimizes the number of separation events and with nine first-stage engines, it can safely complete its mission even in the event of an engine shutdown. Falcon 9 is




Learn more about Falcon 9

## Falcon Heavy

70m | 229.6 ft HEIGHT

27 ENGINES

54,400kg | 190,930 lb PAYLOAD TO LEO

13,600kg | 29,980lb PAYLOAD TO MARS

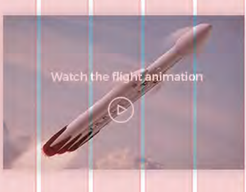
2 STAGES

2 BOOSTER

24,681kN | 5,548,500lbf THRUST IN VACCUM

22,819kN | 5,130,000 lbf THRUST AT SEA LEVEL

When Falcon Heavy lifts off later this year, it will be the most powerful operational rocket in the world by a factor of two. With the ability to lift into orbit over 54 metric tons (119,000 lb) a mass equivalent to a 737 jetliner loaded with passengers, crew, luggage and fuel it can lift more than twice the payload of the next closest operational vehicle, the Delta IV Heavy, at one-third the cost. Falcon Heavy was designed from the outset to carry humans into space and restores the possibility of flying missions with crew to the Moon or Mars.




Learn more about Falcon Heavy

## Dragon

70m | 229.6 ft HEIGHT

54,400kg | 190,930 lb PAYLOAD TO LEO

13,600kg | 29,980lb PAYLOAD TO MARS

2 BOOSTERS

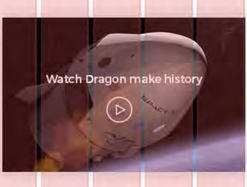
24,681kN | 5,548,500lbf THRUST IN VACCUM

22,819kN | 5,130,000 lbf THRUST AT SEA LEVEL

27 ENGINES

2 STAGES

Dragon is a free-flying spacecraft designed to deliver both cargo and people to orbiting destinations. Dragon made history in 2012 when it became the first commercial spacecraft in history to deliver cargo to the International Space Station and safely return cargo to Earth. Currently Dragon carries cargo to space, but it was designed from the beginning to carry humans. Under an agreement with NASA, SpaceX is now developing the refinements that will enable Dragon to fly crew. Dragon's first manned test flight is expected to take place in 2-3 years.




Learn more about Dragon

### Sign up for our Newsletter

Keep yourself up to date with all things space and SpaceX, get specialized for students, Enthusiasts and Professionals

elonmusk@spacex.com

○ Student ○ Enthusiast ○ Pro

SIGN UP

### ABOUT

We have launch and test facilities in Texas, California and Florida

EXPLORE

### CAREERS

Make your space dreams come true in Enggineering, Manufacturing and Operations

SEE OPEN POSITIONS



2016 © Space Exploration Technologies Corp.

# Falcon 9

| 70m | 229.6 ft HEIGHT | 549,054 kg | 1,207,920 lb WEIGHT | 22,800kg | 50,265 lb PAYLOAD TO LEO | 4,020kg | 8,860lb PAYLOAD TO MARS |
|---|---|---|---|---|---|---|---|
| 8,300kg | 18,300 lb PAYLOAD TO GTO | 914kN | 205,000 lbf THRUST | 3.7m | 12 ft DIAMETER | | |
| 9 | 27Mec BURN TIME | 1 | ENGINE | 2 | STAGES | | |

Falcon 9 is a two-stage rocket designed and manufactured by SpaceX for the reliable and safe transport of people and payloads into orbit. As the first rocket completely developed in the 21st century, Falcon 9 was designed from the ground up for maximum reliability. Falcon 9's simple two-stage configuration minimizes the number of separation events and with nine first-stage engines, it can safely operate its mission even in the event of an engine shutdown. Falcon 9 is

Watch the launch

## PAYLOAD

Dragon is a fully autonomous spacecraft designed to transport cargo and ultimately people to and from orbit. Falcon 9 delivers payloads to space aboard the Dragon spacecraft or inside a composite fairing. Dragon carries cargo in the spacecraft's pressurized capsule and unpressurized trunk, which can also accommodate secondary payloads. In the future, Dragon will carry astronauts in the pressurized capsule as well.

## SECOND STAGE

The second stage, powered by a single Merlin vacuum engine, delivers Falcon 9's payload to the desired orbit. The second stage engine ignites a few seconds after stage separation. Falcon 9 can deploy multiple times to place multiple payloads into different orbits. For maximum reliability, the second stage has redundant igniter systems. Like the first stage, the second stage is made from a high-strength aluminum-lithium alloy. Falcon 9's second stage is powered by a single Merlin vacuum engine nearly identical to the first-stage engines, but modified to operate in the vacuum of space.

Like the main Merlin engines, the vacuum engine is designed and manufactured in-house by SpaceX. The engine is designed to burn for about six minutes, and can be shut down and restarted multiple times as needed to deliver different payloads into different orbits. SpaceX's Merlin vacuum engine has the highest vacuum specific impulse a measure of engine efficiency of any American liquid oxygen/kerosene engine with a vacuum isp of 348 seconds. The engine is housed inside the rocket's interstage.

Share

## INTERSTAGE

The interstage is a composite structure that connects the first and second stages and holds the release and separation system. Falcon 9 uses an all-pneumatic stage separation system for low-shock, highly reliable separation that can be tested on the ground, unlike pyrotechnic systems used on most launch vehicles. Falcon 9's first stage incorporates nine composite overwrap aluminum-lithium alloy tanks containing liquid oxygen and rocket-grade kerosene (RP-1) propellant.

Save to pocket

# Falcon Heavy

| 70m | 229.6 ft HEIGHT | 27 ENGINES | 54,400kg | 190,392 lb PAYLOAD TO LEO | 13,600kg | 29,980lb PAYLOAD TO MARS |
|---|---|---|---|---|---|---|
| 2 STAGES | 2 BOOSTER | 24,681kN | 5,500,000 lbf THRUST IN VACUUM | 22,819MN | 5,130,000 lbf THRUST AT SEA LEVEL | |

When Falcon Heavy lifts off later this year, it will be the most powerful operational rocket in the world by a factor of two. With the ability to lift into orbit over 54 metric tons (119,000 lb) a mass equivalent to a 737 jetliner loaded with cargo, fuel, passenger luggage and fuel it can lift more than twice the payload of the next closest operational vehicle, the Delta IV Heavy, at one-third the cost. Falcon Heavy was designed from the outset to carry humans into space and restores the possibility of flying missions with crew to the Moon or Mars.

Watch the flight animation

## PAYLOAD

Falcon Heavy missions will deliver large payloads to orbit inside a composite fairing, but the rocket can also carry the Dragon spacecraft. The composite payload fairing protects satellites during delivery to destinations in low Earth orbit (LEO), geosynchronous transfer orbit (GTO) and beyond. The fairing's two-piece cross section is arranged in an Octaweb structure, with eight engines surrounding one center engine on each core. The Merlin engine that powers all three Falcon Heavy cores was developed internally by SpaceX, drawing upon a long heritage of space-proven engines. A key design at the heart of Merlin was first used for the Apollo lunar landing module. SpaceX's payload fairing, a composite structure fabricated in-house by SpaceX, protects satellites during delivery to low Earth orbit (LEO) geosynchronous transfer orbit (GTO) and beyond. The fairing's first stage is equipped with hypergolic grid fins which manipulate the direction of the stage's lift during reentry. The twenty-seven Merlin engines that power Falcon Heavy's three cores are arranged in an Octaweb structure with eight engines surrounding one center engine on each core.

## INTERSTAGE

Inside each of Falcon Heavy's three cores is a cluster of nine Merlin engines. These same engines power Falcon 9, enabling efficiencies that make Falcon Heavy the most cost-effective heavy-lift launch vehicle in the world. With a total of 27 first-stage engines, Falcon Heavy has engine-out capability that no other launch vehicle can match—under most payload scenarios, it can sustain more than one unplanned engine shutdown at any point in flight and still successfully complete its mission. Falcon Heavy's first stage is equipped with hypergolic grid fins which manipulate the direction of the stage's lift during reentry. The tanks of Falcon Heavy's three first-stage cores and second stage are made of aluminum-lithium alloy, a material made stronger and lighter than aluminum by the addition of lithium. Falcon Heavy was designed to be fully reusable. Both the center core

## SECOND STAGE

Falcon Heavy draws upon Falcon 9's proven design, which minimizes stage separation events and maximizes reliability. The second-stage Merlin engine, identical to its counterpart on Falcon 9, delivers the rocket's payload to orbit after the main engines cut off and the first-stage cores separate. The engine can be restarted multiple times to place payloads into a variety of orbits, including low Earth orbit, geosynchronous transfer orbit (GTO) and geosynchronous orbit (GSO). Three cores make up the first stage of Falcon Heavy. The side cores, or boosters, are connected at the base and at the top of the center core's liquid oxygen tank. The three cores, with a total of 27 Merlin engines, generate 22,819 kilonewtons (5.13 million pounds) of thrust at liftoff. Shortly after liftoff the center core engines are throttled down. After the side cores separate, the center core engines throttle back up to full thrust. Heavy. The side cores, or boosters, are connected at the base and at the top of the center core's liquid oxygen tank. The three cores, with a total of 27 Merlin engines, generate 22,819 kilonewtons (5.13 million pounds) of thrust at liftoff. Shortly after liftoff the center core engines are throttled down. After the side cores separate, the center core engines throttle back up to full

Share

Save to pocket

# Dragon

| 70m | 229.6 ft HEIGHT | 54,400kg | 190,392 lb PAYLOAD TO LEO | 13,600kg | 29,980lb PAYLOAD TO MARS | 2 BOOSTERS |
|---|---|---|---|---|---|---|
| 24,681kN | 5,528,500lbf THRUST IN VACUUM | 22,819MN | 5,130,000 lbf THRUST AT SEA LEVEL | 27 ENGINES | 2 STAGES | |

Dragon is a free-flying spacecraft designed to deliver both cargo and people to orbiting destinations. Dragon made history in 2012 when it became the first commercial spacecraft in history to deliver cargo to the International Space Station and safely return cargo to Earth. Currently Dragon carries cargo to space, but it was designed from the beginning to carry humans. Under an agreement with NASA, SpaceX is now developing the refinements that will enable Dragon to fly crew. Dragon's first manned test flight is expected to take place in 2-3 years.

Watch Dragon make

## CARGO

Dragon is the first commercial spacecraft to deliver cargo to the International Space Station and currently the only cargo spacecraft flying capable of returning significant amounts of cargo to Earth. Dragon accommodates pressurized cargo in the capsule as well as unpressurized cargo in its trunk. The racks are a honeycomb carbon-aluminum construction designed for efficient packing in a zero-gravity environment. They accommodate a variety of standard-size NASA cargo bags as well as freezers for carrying materials such as biological samples.Heavy. The side cores, or boosters, are connected at the base

## CREW

Dragon was designed from the outset to fly humans to space. Under an agreement with NASA, SpaceX is making upgrades to Dragon to allow for crew carrying capability. Dragon will be the world's safest and most reliable crewed spacecraft, with redundant systems to life support, propulsion controls, without manual capability, and a powered launch escape system. Upgrades to Dragon are currently in progress. Dragon's first manned test flight is expected to take place in the next 2-3 years.

## TRUNK

Dragon's trunk supports the spacecraft during ascent to space, carries unpressurized cargo and houses Dragon's solar arrays. The trunk and solar arrays remain attached to Dragon until shortly before reentry to Earth's atmosphere, when they are jettisoned space-processor engines. A key design at the heart of Merlin was first used for the Apollo lunar landing module. The Dragon spacecraft has three configurations to meet a variety of needs: cargo, crew and DragonLab. To ensure a rapid transition from cargo, to crew capability, the cargo and crew configurations of Dragon are almost identical. This commonality simplifies the human rating process, allowing systems critical to crew and space station safety to be fully tested on unmanned cargo flights. With DragonLab, essentially the same spacecraft can be used as a platform for in-space technology demonstrations and experiments.

## DRAGONLAB

DragonLab is a free-flying, unmanned platform designed for research and testing in a microgravity environment independent of the International Space Station. It can transport payloads, experiments, instruments, and sensors into space and back to Earth on missions ranging from one week to two years. DragonLab can readily accommodate instrument and sensor testing, space physics and relativity experiments, radiation effects research, and many other microgravity tests.

Sign up for our Newsletter

Keep yourself up to date with all things space and SpaceX, get specialized news for students, Enthusiasts, and Professionals

Student Enthusiast Pro

SIGN UP

IN THE NEWS

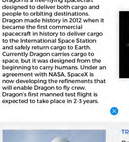
We're going to Mars

The Interplanetary Transport System will become the most powerful rocket ever built with a spacecraft designed for carry at to the Red Planet.

ABOUT

We have launch and test facilities in Texas, California and Florida

EXPLORE



CAREERS

Make your space dreams come true in Engineering, Manufacturing and Operations

SEE OPENINGS



2016 © Space Exploration Technologies Corp.

# Falcon 9

70m | 229.6 ft HEIGHT
549,054 kg | 1,207,920 lb PAYLOAD TO LEO
22,800kg | 50,265 lb PAYLOAD TO LEO
4,020kg | 8,860lb PAYLOAD TO MARS
8,300kg | 18,300 lb PAYLOAD TO GTO
914kN | 205,000 lbf THRUST
3.7m | 12 ft DIAMETER
372sec BURN TIME
2 ENGINE
2 STAGES

Falcon 9 is a two-stage rocket designed and manufactured by SpaceX for the reliable and safe transport of crew and cargo to Earth orbit. As the first rocket completely developed in the 21st century, Falcon 9 was designed from the ground up for maximum reliability. Falcon 9's simple two-stage configuration minimizes the number of separation events and with nine first-stage engines, it can tolerate failures in mission even in the event of an engine shutdown. Falcon 9 is

Watch the launch

## PAYLOAD

Dragon is a fully autonomous spacecraft designed to transport cargo and ultimately people to and from orbit. Falcon 9 delivers payloads to space aboard the Dragon spacecraft or inside a composite fairing. Dragon carries cargo in the spacecraft's pressurized capsule and unpressurized trunk, which can also accommodate secondary payloads. In the future, Dragon will carry astronauts in the pressurized capsule as well.

## SECOND STAGE

The second stage, powered by a single Merlin vacuum engine, delivers Falcon 9's payload to the desired orbit. The second stage engine ignites a few seconds after stage separation. Falcon 9 can deploy multiple times to place multiple payloads into different orbits. For maximum reliability, the second stage has redundant igniter systems. Like the first stage, the second stage is made from a high-strength aluminum-lithium alloy. Falcon 9's second stage is powered by a single Merlin vacuum engine ideally identical to the first-stage engines, but modified to operate in the vacuum of space.

Like the main Merlin engines, the vacuum engine is designed and manufactured in-house by SpaceX. The engine is designed to burn for about six minutes, and can be shut down and restarted multiple times as needed to deliver different payloads into different orbits. SpaceX's Merlin vacuum engine has the highest vacuum specific impulse a measure of engine efficiency of any American liquid oxygen/kerosene engine with a vacuum isp of 342 seconds. The engine is housed inside the rocket's interstage.

## INTERSTAGE

The interstage is a composite structure that connects the first and second stages and holds the release and separation system. Falcon 9 uses an all-pneumatic stage separation system for low-shock, highly reliable separation that can be tested on the ground, unlike pyrotechnic systems used on most launch vehicles. Falcon 9's first stage incorporates nine aluminum-lithium alloy tanks containing liquid oxygen and rocket-grade kerosene (RP-1) propellant.

Save to pocket

# Falcon Heavy

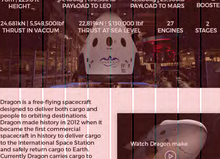
70m | 229.6 ft HEIGHT
27 ENGINES
5,443kN | 1,190,991 lb PAYLOAD TO LEO
13,600kg | 29,980lb PAYLOAD TO MARS
2 STAGES
2 BOOSTER
24,681kN | 5,548,500lbf THRUST IN VACCUM
22,819kN | 5,130,000 lbf THRUST AT SEA LEVEL

When Falcon Heavy lifts off later this year, it will be the most powerful operational rocket in the world by a factor of two. With the ability to lift into orbit over 54 metric tons (119,000 lb) a mass equivalent to a 737 jetliner loaded with passengers, crew, luggage and fuel it can lift more than twice the payload of the next closest operational vehicle, the Delta IV Heavy, at one-third the cost. Falcon Heavy was designed from the outset to carry humans into space and restore the possibility of flight missions with crew to the Moon or Mars.

Watch the flight animation

## PAYLOAD

Falcon Heavy missions will deliver large payloads to orbit inside a composite fairing, but the rocket can also carry the Dragon spacecraft. The composite payload fairing protects satellites during delivery to destinations in low Earth orbit (LEO), geosynchronous transfer orbit (GTO) and beyond. The fairing's two-cross section arrangement in an Octaweb structure, with eight engines surrounding one center engine on each core. The Merlin engine that powers all Falcon Heavy cores was developed internally by SpaceX, drawing upon a long heritage of space-proven engines. A key design at the heart of Merlin was first used for the Apollo lunar landing module, space-proven engine. A key design at the heart of Merlin was first used for the Apollo lunar landing module. SpaceX's payload fairing, a composite structure fabricated in-house by SpaceX, protects satellites during low-to-low Earth orbit (LEO) geosynchronous transfer orbit (GTO) and beyond. Falcon Heavy's first stage is equipped with hypergolic grid fins which manipulate the direction of the stage's lift during reentry. The twenty-seven Merlin engines that power Falcon Heavy's three cores are arranged in an Octaweb structure with eight engines surrounding one center engine on each core.



## INTERSTAGE

Inside each of Falcon Heavy's three cores is a cluster of nine Merlin engines. These same engines power Falcon 9, enabling efficiencies that make Falcon Heavy the most cost-effective heavy-lift launch vehicle in the world. With a total of 27 first-stage engines, Falcon Heavy has engine-out capability that no other launch vehicle can match—under most payload scenarios, it can sustain more than one unplanned engine shutdown at any point in flight and still successfully complete its mission. Falcon Heavy's first stage is equipped with hypergolic grid fins which manipulate the direction of the stage's lift during reentry. The twenty-seven Merlin engines that power Falcon Heavy's three cores are arranged in an Octaweb structure with eight engines surrounding one center engine on each core.

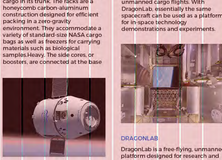
## SECOND STAGE

Falcon Heavy draws upon Falcon 9's proven design, which minimizes stage separation events and maximizes reliability. The second-stage Merlin engine, identical to its counterpart on Falcon 9, delivers the rocket's payload to orbit after the main engines cut off and the first-stage cores separate. The engine can be restarted multiple times to place payloads into a variety of orbits, including low Earth, geosynchronous transfer orbit (GTO) and geosynchronous orbit (GSO). These cores make up the first stage of Falcon Heavy. The side cores, or boosters, are connected at the base and at the top of the center core's liquid oxygen tank. The three cores, with a total of 27 Merlin engines, generate 22,819 kilonewtons (5.13 million pounds) of thrust at liftoff. Shortly after liftoff the center core engines are throttled down. After the side cores separate, the center core engines throttle back up to full thrust. Heavy. The side cores, or boosters, are connected at the base and at the top of the center core's liquid oxygen tank. The three cores, with a total of 27 Merlin engines, generate 22,819 kilonewtons (5.13 million pounds) of thrust at liftoff. Shortly after liftoff the center core engines are throttled down. After the side cores separate, the center core engines throttle back up to full

Save to pocket

# Dragon

70m | 229.6 ft HEIGHT
549,054 kg | 190,991 lb PAYLOAD TO LEO
13,600kg | 29,980lb PAYLOAD TO MARS
2 BOOSTERS
24,681kN | 5,548,500lbf THRUST IN VACCUM
22,819kN | 5,130,000 lbf THRUST AT SEA LEVEL
27 ENGINES
2 STAGES



Dragon is a free-flying spacecraft designed to deliver both cargo and people to orbiting destinations. Dragon made history in 2012 when it became the first commercial spacecraft in history to deliver cargo to the International Space Station and safely return cargo to Earth. Currently Dragon carries cargo to space, but it was designed from the beginning to carry humans. Under an agreement with NASA, SpaceX is now developing the software that will enable Dragon to fly crew. Dragon's first manned test flight is expected to take place in 2-3 years.

Watch Dragon make

## CARGO

Dragon is the first commercial spacecraft to deliver cargo to the International Space Station and currently the only cargo spacecraft flying capable of returning significant amounts of cargo to Earth. Dragon accommodates pressurized cargo in the capsule as well as unpressurized cargo in its trunk. The racks are a honeycomb carbon-aluminum construction designed for efficient packing in a zero-gravity environment. They accommodate a variety of standard-size NASA cargo bags as well as freezer for carrying materials such as biological samples.Heavy. The side cores, or boosters, are connected at the base

## CREW

Dragon was designed from the outset to fly humans to space. Under an agreement with NASA, SpaceX is making upgrades to Dragon to allow for crew carrying capability. Dragon will be the world's safest and most reliable human-rated spacecraft, featuring an innovative, launch-support escape system, a powerful launch capability, and a powered launch escape system. Upgrades to Dragon are currently in progress. Dragon's first manned test flight is expected to take place in the next 2-3 years

## TRUNK

Dragon's trunk supports the spacecraft during ascent to space, carries unpressurized cargo and houses Dragon's solar array. The trunk and solar array remain attached to Dragon until shortly before reentry to Earth's atmosphere, when they are jettisoned space-proven engines. A key design at the heart of Merlin was first used for the Apollo lunar landing module. The Dragon spacecraft has three configurations to meet a variety of needs: cargo, crew and DragonLab. To ensure a rapid transition from cargo, to crew capability, the cargo and crew configurations of Dragon are almost identical. This commonality simplifies the human rating process, allowing systems critical to crew and space station safety to be fully tested on unmanned cargo flights. With DragonLab, essentially the same spacecraft can be used as a platform for in-space technology demonstrations and experiments.

## DRAGONLAB

DragonLab is a free-flying, unmanned platform designed for research and testing in a microgravity environment independent of the International Space Station. It can transport payloads, experiments, instruments, and sensors into space and back to Earth on missions ranging from one week to two years. DragonLab can readily accommodate instrument and sensor testing, space physics and relativity experiments, radiation effects research, and many other microgravity tests.

Sign up for our Newsletter
Keep yourself up to date with all things space and SpaceX, get specialized news for students, Enthusiasts and Professionals
☐ Student ☐ Enthusiast ☐ Pro

IN THE NEWS

We're going to Mars

The Interplanetary Transport System will become the most powerful rocket ever built with a spacecraft designed to carry at to the Red Planet.

## ABOUT

We have launch and test facilities in Texas, California and Florida

EXPLORE

## CAREERS

Make your space dreams come true in Engineering, Manufacturing and Operations

SEE OPEN JOBS

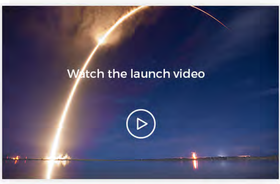


2016 © Space Exploration Technologies Corp.

# Falcon 9

70m | 229.6 ft HEIGHT
549,054 kg | 1,207,920 lb WEIGHT
22,800kg | 50,265 lb PAYLOAD TO LEO
4,020kg | 8,860lb PAYLOAD TO MARS
8,300kg | 18,300 lb PAYLOAD TO GTO
934kN | 210,000 lbf THRUST
3.7m | 12 ft DIAMETER
397sec BURN TIME
1 ENGINE
2 STAGES

Falcon 9 is a two-stage rocket designed and manufactured by SpaceX for the reliable and safe transport of satellites and the Dragon spacecraft into orbit. As the first rocket completely developed in the 21st century, Falcon 9 was designed from the ground up for maximum reliability. Falcon 9's simple two-stage configuration minimizes the number of separation events and with nine first-stage engines, it can safely complete its mission even in the event of an engine shutdown. Falcon 9 is launching on 4th December.

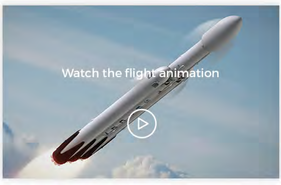



Learn more about Falcon 9

# Falcon Heavy

70m | 229.6 ft HEIGHT
27 ENGINES
54,400kg | 190,930 lb PAYLOAD TO LEO
13,600kg | 29,980lb PAYLOAD TO MARS
2 STAGES
2 BOOSTERS
24,681kN | 5,548,500lbf THRUST IN VACCUM
22,819kN | 5,130,000 lbf THRUST AT SEA LEVEL

When Falcon Heavy lifts off later this year, it will be the most powerful operational rocket in the world by a factor of two. With the ability to lift into orbit over 54 metric tons (119,000 lb) a mass equivalent to a 737 jetliner loaded with passengers, crew, luggage and fuel it can lift more than twice the payload of the next closest operational vehicle, the Delta IV Heavy, at one-third the cost. Falcon Heavy was designed from the outset to carry humans into space and restores the possibility of flying missions with crew to the Moon or Mars.

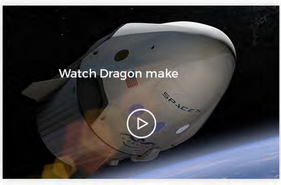



Learn more about Falcon Heavy

# Dragon

70m | 229.6 ft HEIGHT
27 ENGINES
54,400kg | 190,930 lb PAYLOAD TO LEO
13,600kg | 29,980lb PAYLOAD TO MARS
2 STAGES
2 BOOSTERS
24,681kN | 5,548,500lbf THRUST IN VACCUM
22,819kN | 5,130,000 lbf THRUST AT SEA LEVEL

Dragon is a free-flying spacecraft designed to deliver both cargo and people to orbiting destinations. Dragon made history in 2012 when it became the first commercial spacecraft in history to deliver cargo to the International Space Station and safely return cargo to Earth. Currently Dragon carries cargo to space, but it was designed from the beginning to carry humans. Under an agreement with NASA, SpaceX is now developing the refinements that will enable Dragon to fly crew. Dragon's first manned test flight is expected to take place in 2-3 years.




Learn more about Dragon

## Sign up for our Newsletter

Keep yourself up to date with all things space and SpaceX, get specialized for students, Enthusiasts and Professionals

elonmusk@spacex.com

○ Student ○ Enthusiast ○ Pro

SIGN UP

ABOUT

## We have launch and test facilities in Texas, California and Florida

EXPLORE

CAREERS

## Make your space dreams come true in Enggineering, Manufacturing and Operations

SEE OPENINGS

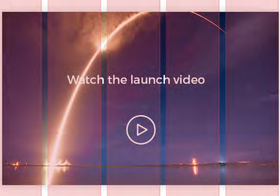


2016 © Space Exploration Technologies Corp.

# Falcon 9

70m | 229.6 ft HEIGHT
549,054 kg | 1,207,920 lb WEIGHT
22,800kg | 50,265 lb PAYLOAD TO LEO
4,020kg | 8,860lb PAYLOAD TO MARS
8,300kg | 18,300 lb PAYLOAD TO GTO
934kN | 210,000 lbf THRUST
3.7m | 12 ft DIAMETER
397sec BURN TIME
1 ENGINE
2 STAGES

Falcon 9 is a two-stage rocket designed and manufactured by SpaceX for the reliable and safe transport of satellites and the Dragon spacecraft into orbit. As the first rocket completely developed in the 21st century, Falcon 9 was designed from the ground up for maximum reliability. Falcon 9's simple two-stage configuration minimizes the number of separation events and with nine first-stage engines, it can safely complete its mission even in the event of an engine shutdown. Falcon 9 is launching on 4th December.

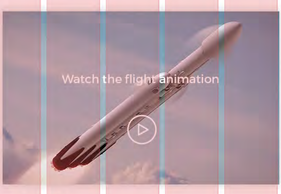



Learn more about Falcon 9

# Falcon Heavy

70m | 229.6 ft HEIGHT
27 ENGINES
54,400kg | 190,930 lb PAYLOAD TO LEO
13,600kg | 29,980lb PAYLOAD TO MARS
2 STAGES
2 BOOSTERS
24,681kN | 5,548,500lbf THRUST IN VACCUM
22,819kN | 5,130,000 lbf THRUST AT SEA LEVEL

When Falcon Heavy lifts off later this year, it will be the most powerful operational rocket in the world by a factor of two. With the ability to lift into orbit over 54 metric tons (119,000 lb) a mass equivalent to a 737 jetliner loaded with passengers, crew, luggage and fuel it can lift more than twice the payload of the next closest operational vehicle, the Delta IV Heavy, at one-third the cost. Falcon Heavy was designed from the outset to carry humans into space and restores the possibility of flying missions with crew to the Moon or Mars.

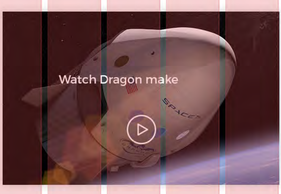



Learn more about Falcon Heavy

# Dragon

70m | 229.6 ft HEIGHT
27 ENGINES
54,400kg | 190,930 lb PAYLOAD TO LEO
13,600kg | 29,980lb PAYLOAD TO MARS
2 STAGES
2 BOOSTERS
24,681kN | 5,548,500lbf THRUST IN VACCUM
22,819kN | 5,130,000 lbf THRUST AT SEA LEVEL

Dragon is a free-flying spacecraft designed to deliver both cargo and people to orbiting destinations. Dragon made history in 2012 when it became the first commercial spacecraft in history to deliver cargo to the International Space Station and safely return cargo to Earth. Currently Dragon carries cargo to space, but it was designed from the beginning to carry humans. Under an agreement with NASA, SpaceX is now developing the refinements that will enable Dragon to fly crew. Dragon's first manned test flight is expected to take place in 2-3 years.




Learn more about Dragon

## Sign up for our Newsletter

Keep yourself up to date with all things space and SpaceX, get specialized for students, Enthusiasts and Professionals

elonmusk@spacex.com

○ Student ○ Enthusiast ○ Pro

SIGN UP

IN THE NEWS

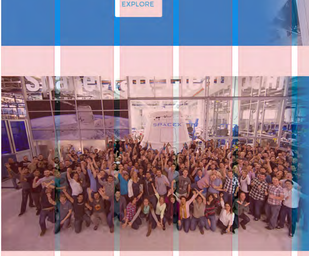
## We're going to mars

The Interplanetary Transport System will combine the most powerful rocket ever built with a spaceship designed to carry people to the Red Planet. See more

ABOUT

## We have launch and test facilities in Texas, California and Florida

EXPLORE



CAREERS

## Make your space dreams come true in Enggineering, Manufacturing and Operations

SEE OPENINGS



2016 © Space Exploration Technologies Corp.

# Falcon 9

70m | 229.6 ft HEIGHT
549.054 kg | 1,207.920 lb WEIGHT
22,800kg | 50,265 lb PAYLOAD TO LEO
4,020kg | 8,860lb PAYLOAD TO MARS
8,300kg | 18,300 lb PAYLOAD TO GTO
934kN | 210,000 lbf THRUST
3.7m | 12 ft DIAMETER
397sec BURN TIME
1 ENGINE
2 STAGES

Falcon 9 is a two-stage rocket designed and manufactured by SpaceX for the reliable and safe transport of satellites and the Dragon spacecraft into orbit. As the first rocket completely developed in the 21st century, Falcon 9 was designed from the ground up for maximum reliability. Falcon 9's simple two-stage configuration minimizes the number of separation events and with nine first-stage engines, it can safely complete its mission even in the event of an engine shutdown. Falcon 9 is launching on 4th December.

## PAYLOAD

Dragon is a fully autonomous spacecraft designed to transport cargo and people to orbitting destinations. Dragon can carry up to seven astronauts or a payload of 6,000 kg to orbit. Falcon 9 delivers payloads to space aboard the Dragon spacecraft or inside a composite fairing. Dragon carries cargo in the spacecraft's pressurized capsule and unpressurized trunk, which can also accommodate additional payloads. Dragon's trunk can also carry astronauts in the pressurized capsule as well.

## SECOND STAGE

The second stage, powered by a single Merlin vacuum engine, delivers Dragon or 9's payload to the desired orbit. The second stage engine ignites a few seconds after stage separation, and can be restarted multiple times to place multiple payloads into different orbits. For maximum reliability, the second stage has redundant ignition systems. Like the first stage, the second stage is made from a high-strength aluminum-lithium alloy. Falcon 9's second stage is powered by a single Merlin vacuum engine nearly identical to the first stage, but modified to operate in the vacuum of space. Like the main Merlin engines, the vacuum engine is designed and manufactured in-house by SpaceX. The engine is designed to burn for about six minutes, and can be shut down and restarted multiple times as needed to place payloads into different orbits. SpaceX's Merlin vacuum engine has the highest vacuum specific impulse (a measure of engine efficiency- of any American liquid oxygen/kerosene engine with a vacuum-isp of 348 seconds. The engine is housed inside the rocket's interstage.

LAUNCH MANIFEST

**Falcon 9 launch on 4th December**

## INTERSTAGE

The interstage is a composite structure that connects the first and second stages and holds the release and separation system. Falcon 9 uses an all-pneumatic stage separation system for low-shock, highly reliable separation that can be tested on the ground multiple times before being used on most launch vehicles. Falcon 9's first stage incorporates nine Merlin engines and aluminum-lithium alloy tanks containing liquid oxygen and rocket-grade kerosene (RP-1) propellant.

Save to pocket Share

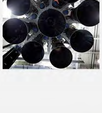
# Falcon Heavy

70m | 229.6 ft HEIGHT
27 ENGINES
2 STAGES
2 BOOSTERS
54,400kg | 119,950 lb PAYLOAD TO LEO
24,681kN | 5,548,500 lbf THRUST AT VACCUM
13,600kg | 29,980lb PAYLOAD TO MARS
22,819kN | 5,130,000 lbf THRUST AT SEA LEVEL

When Falcon Heavy lifts off later this year, it will be the most powerful operational rocket in the world by a factor of two. With the ability to lift into orbit over 54 metric tons (119,000 lb) a mass equivalent to a 737 jetliner loaded with passengers, crew, luggage and fuel it can lift more than twice the payload of the next closest operational vehicle, the Delta IV Heavy, at one-third the cost. Falcon Heavy was designed from the outset to carry humans into space and restores the possibility of flying missions with crew to the Moon or Mars.

## PAYLOAD

Falcon Heavy missions will deliver large payloads to orbit inside a composite fairing, but the rocket can also carry the Dragon spacecraft. The composite fairing protects payloads during delivery to destinations in low Earth orbit (LEO), geosynchronous transfer orbit (GTO) and beyond. The twenty-seven Merlin engines that power Falcon Heavy's three cores are arranged in an Octaweb structure, with nine engines surrounding each outboard core on each core. The Merlin engine that powers all three Falcon Heavy cores was developed internally by SpaceX, drawing upon a long heritage



## SECOND STAGE

Falcon Heavy draws upon Falcon 9's proven design, which minimizes stage separation events and maximizes reliability. The second stage Merlin engine, identical to its counterpart on Falcon 9, can be restarted multiple times to orbit after the main engines cut off and the first-stage cores separate. The engine can be restarted multiple times to place payloads into a variety of orbits, including low Earth, geosynchronous transfer orbit (GTO) and geosynchronous orbit (GSO). Three cores make up the first stage of Falcon Heavy. The side cores, or boosters, are connected at the base and at the top of the center core's liquid oxygen tank. The three cores, with a total of 27 Merlin engines, generate 22,819 kilonewtons (5.13 million pounds) of thrust at liftoff. Shortly after liftoff the center core engines throttle back down. After the side cores separate, the center core engines throttle back up to full thrust. Each of Falcon Heavy's side cores, or boosters, is equivalent to the first stage of a Falcon 9 rocket with nine Merlin engines. At liftoff, the boosters and the center core all operate at full thrust.

## INTERSTAGE

Inside each of Falcon Heavy's three cores is a cluster of nine Merlin engines. These same engines power Falcon 9, enabling efficiencies that make Falcon Heavy the most powerful operational lift launch vehicle in the world. With a total of 27 first-stage engines, Falcon Heavy has engine-out capability that no other launch vehicle can match—under most payload scenarios, Falcon Heavy can withstand unplanned engine shutdown at any point in flight and still successfully complete its mission.

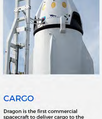
Falcon Heavy's first stage is equipped with hypersonic grid fins which manipulate the direction of the stage's lift during reentry. The tanks of Falcon Heavy's first stage, boosters and second stage are made of aluminum-lithium alloy, a material made stronger and lighter than aluminum by the addition of lithium. Falcon Heavy was designed to be fully reusable. Both the center core and side boosters have reentry landing legs, which will land each core safely on Earth after takeoff.

Save to pocket Share

# Dragon

70m | 229.6 ft HEIGHT
2 STAGES
27 ENGINES
2 BOOSTERS
54,400kg | 119,950 lb PAYLOAD TO LEO
24,681kN | 5,548,500 lbf THRUST AT VACCUM
13,600kg | 29,980lb PAYLOAD TO MARS
22,819kN | 5,130,000 lbf THRUST AT SEA LEVEL

Dragon is a free-flying spacecraft designed to deliver both cargo and people to orbitting destinations. Dragon made history in 2012 when it became the first commercial spacecraft in history to deliver cargo to the International Space Station and safely return cargo to Earth. Currently Dragon carries cargo to space, but it was designed from the beginning to carry humans. Under an agreement with NASA, SpaceX is now developing the refinements that will enable Dragon to fly crew. Dragon's first manned test flight is expected to take place in 2-3 years.



## TRUNK

Dragon's trunk supports the spacecraft during ascent to space, carries unpressurized cargo and houses Dragon's solar arrays. The trunk and solar arrays remain attached to Dragon until shortly before reentry to Earth's atmosphere, at a safe distance from manned space-present engines. A key design at the heart of Merlin was first used for the Apollo lunar landing module. The Dragon spacecraft has three configurations to meet a variety of needs: cargo, crew and DragonLab. To ensure a rapid transition from cargo to crew capability, the cargo and crew configurations of Dragon are almost identical. This commonality simplifies the human rating process, allowing systems critical to human spaceflight to be tested the fully reusable unmanned cargo flights. With DragonLab, essentially the same spacecraft can be used as a platform for in-space technology demonstrations and experiments.

## CARGO

Dragon is the first commercial spacecraft to deliver cargo to the International Space Station and currently the only cargo spacecraft flying capable of returning significant cargo back to earth. Dragon's trunk accommodates pressurized cargo in the capsule as well as unpressurized cargo in its trunk. The racks are a honeycomb carbon-aluminum construction designed for efficient packing in a zero-gravity environment. They accommodate a variety of standard-size NASA cargo bags as well as freezers for carrying materials such as biological samples.Heavy. The side cores, or boosters, are connected at the base and at the top of the center core's liquid oxygen tank. The three cores, with a total of 27 Merlin engines, generate 22,819 kilonewtons (5.13 million pounds) of thrust at liftoff. Shortly after liftoff the center core engines throttle down. After the side cores separate, the center core engines throttle back up to full thrust. Each of Falcon Heavy's side cores, or boosters, is equivalent to the first stage of a Falcon 9 rocket with nine Merlin engines. At liftoff, the boosters and the center core all operate at full thrust.

## CREW

Dragon was designed from the outset to fly humans to space. Under an agreement with NASA, SpaceX is making upgrades to Dragon to allow for crew carrying capability. Upgrades to Dragon are currently in progress. Dragon's first manned test flight is expected to take place in the next 2-3 years.

## DRAGONLAB

DragonLab is a free-flying, unmanned platform designed for research and testing in the microgravity environment independent of the International Space Station. It can transport payloads, experiments, instruments, and sensors into space and back to Earth on missions ranging from one week to two years. DragonLab can support life sciences research and sensor testing, space physics and relativity experiments, radiation effects research, and many other microgravity tests.

Save to pocket Share

## Sign up for our Newsletter

Keep yourself up to date with all things space and SpaceX, get specialized for students, Enthusiasts and Professionals

elonmusk@spacex.com

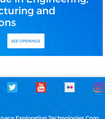
○ Student ○ Enthusiast ○ Pro

SIGN UP

ABOUT

**We have launch and test facilities in Texas, California and Florida**

EXPLORE



CAREERS

**Make your space dreams come true in Engineering, Manufacturing and Operations**

SEE OPENINGS

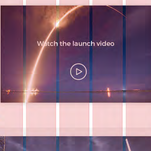


2016 © Space Exploration Technologies Corp.

# Falcon 9

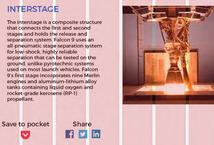
70m | 229.6 ft HEIGHT
549,054 kg | 1,207,920 lb WEIGHT
22,800kg | 50,265 lb PAYLOAD TO LEO
4,020kg | 8,860lb PAYLOAD TO MARS
8,300kg | 18,300 lb PAYLOAD TO GTO
934kN | 210,000 lbf THRUST
3.7m | 12 ft DIAMETER
397sec BURN TIME
1 ENGINE
2 STAGES

Falcon 9 is a two-stage rocket designed and manufactured by SpaceX for the reliable and safe transport of satellites and the Dragon spacecraft into orbit. As the first rocket completely developed in the 21st century, Falcon 9 was designed from the ground up for maximum reliability. Falcon 9 simple two-stage configuration minimizes the number of separation events and with nine first-stage engines, it can safely complete its mission even in the event of an engine shutdown. Falcon 9 is launching on 4th December.




## PAYLOAD

Dragon is a fully autonomous spacecraft designed to transport cargo and people to orbiting destinations. Dragon makes high-mass payloads to space abound the Dragon spacecraft or inside a composite fairing. Dragon carries cargo in the spacecraft's pressurized capsule and unpressurized trunk, which can also accommodate unpressurized payloads. Falcon Dragon will carry astronauts in the pressurized capsule as well.



## SECOND STAGE

The second stage, powered by a single Merlin vacuum engine, delivers the payload to the desired orbit. The second stage engine ignites a few seconds after stage separation, and can be restarted multiple times to place multiple payloads into different orbits. For maximum reliability, the second stage has redundant ignition systems. Like the first stage, the second stage is made from a high-strength aluminum-lithium alloy. Falcon 9's second stage is powered by a single Merlin vacuum engine newly designed to the first stage engines, but modified to operate in vacuum conditions. Like the main Merlin engines, the vacuum engine is designed and manufactured in-house by SpaceX. The engine is designed to burn for about six minutes, and can be shut down and restarted multiple times as necessary to place payloads into different orbits. SpaceX's Merlin vacuum engine has the highest vacuum specific impulse (isp) a measure of engine efficiency- of any American liquid rocket. Merlin vacuum engine with a vacuum isp of 348 seconds. The engine is housed inside the rocket's interstage.

LAUNCH MANIFEST

**Falcon 9 launch on 4th December**

## INTERSTAGE

The interstage is a composite structure that connects the first and second stages and holds the release and separation system. Falcon 9 uses an all-pneumatic stage separation system for low-shock, highly reliable separation that can be tested on the ground. Pneumatic pistons are used on most launch vehicles. Falcon 9's first stage incorporates nine Merlin engines and aluminum-lithium alloy tanks containing liquid oxygen and rocket-grade kerosene (RP-1) propellant.

Save to pocket Share

# Falcon Heavy

70m | 229.6 ft HEIGHT
27 ENGINES
54,400kg | 119,950 lb PAYLOAD TO LEO
13,600kg | 29,980lb PAYLOAD TO MARS
2 STAGES
2 BOOSTERS
24,681kN | 5,548,500lbf THRUST IN VACUUM
22,819kN | 5,130,000 lbf THRUST AT SEA LEVEL

When Falcon Heavy lifts off later this year, it will be the most powerful operational rocket in the world by a factor of two. With the ability to lift into orbit over 54 metric tons (119,000 lb) a mass equivalent to a 737 jetliner loaded with passengers, crew, luggage and fuel it can lift more than twice the payload of the next closest operational vehicle, the Delta IV Heavy, at one-third the cost. Falcon Heavy was designed from the outset to carry humans into space and restores the possibility of flying missions with crew to the Moon or Mars.

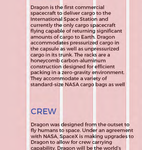
## PAYLOAD

Falcon Heavy missions will deliver large payloads to orbit inside a composite fairing, but the rocket can also carry the Dragon spacecraft. The composite fairing protects payloads during delivery to destinations in low Earth orbit (LEO), geosynchronous transfer orbit (GTO) and beyond. The twenty-seven Merlin engines that power Falcon Heavy's three cores are arranged in an Octaweb structure, with nine engines in each core and one engine on each core. The Merlin engines that powers all three Falcon Heavy cores was developed internally by SpaceX, drawing upon a long heritage

## SECOND STAGE

Falcon Heavy draws upon Falcon 9's proven design, which minimizes stage separation events and maximizes reliability. The second stage Merlin engine, identical to its counterpart on Falcon 9, is optimized for payload to orbit after the main engines cut off and the first-stage cores separate. The engine can be restarted multiple times to place payloads into a variety of orbits, including low Earth orbit, geosynchronous transfer orbit (GTO) and geosynchronous orbit (GSO). These cores make up the first stage of Falcon space-proven engines. A key design at the heart of Merlin was first used for the Falcon 1 rocket's second stage. Its payload fairing, a composite structure fabricated in-house by SpaceX, protects satellites during delivery to low Earth orbit (LEO), geosynchronous transfer orbit (GTO) and beyond. Falcon Heavy's first stage is equipped with hypergolic grid fins which manipulate the direction of the stage's lift during reentry. The twenty seven Merlin engines that power Falcon Heavy's three cores are arranged in an Octaweb structure, with eight engines surrounding one center engine on each

Heavy. The side cores, or boosters, are connected at the base and at the top of the center core's liquid oxygen tank. The three cores, with a total of 27 Merlin engines, generate 22,819 kilonewtons (5.13 million pounds) of thrust at liftoff. Shortly after liftoff the center core engine throttles back up to full thrust. Each of Falcon Heavy's side cores, or boosters, is equivalent to the first stage of a Falcon 9 rocket with nine Merlin engines. At liftoff, the boosters and the center core all operate at full thrust.



## INTERSTAGE

Inside each of Falcon Heavy's three cores is a cluster of nine Merlin engines. These same engines power Falcon 9, enabling efficiencies that make Falcon Heavy the most powerful operational rocket in the world. With a total of 27 first-stage engines, Falcon Heavy has engine-out capability that no other launch vehicle can match-under most payload scenarios, Falcon Heavy can complete its mission in unplanned engine shutdown at any point in flight and still successfully complete its mission.

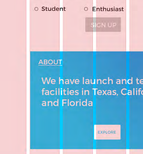
Falcon Heavy's first stage is equipped with hypergolic grid fins which manipulate the direction of the stage's lift during reentry. The tanks of Falcon Heavy's three cores and the second stage are made of aluminum-lithium alloy, a material made stronger and lighter than aluminum by the addition of lithium. Falcon Heavy was designed to be fully reusable. Both the center core and side boosters carry landing legs, which will land each core safely on Earth after takeoff.

Save to pocket Share

# Dragon

70m | 229.6 ft HEIGHT
27 ENGINES
54,400kg | 190,930 lb PAYLOAD TO LEO
13,600kg | 29,980lb PAYLOAD TO MARS
2 STAGES
2 BOOSTERS
24,681kN | 5,548,500lbf THRUST IN VACCUM
22,819kN | 5,130,000 lbf THRUST AT SEA LEVEL

Dragon is a free-flying spacecraft designed to deliver both cargo and people to orbiting destinations. Dragon made history in 2012 when it became the first commercial spacecraft in history to deliver cargo to the International Space Station and safely return cargo to Earth. Currently Dragon carries cargo to space, but it was designed from the beginning to carry humans. Under an agreement with NASA, SpaceX is now developing the refinements that will enable Dragon to fly crew. Dragon's first manned test flight is expected to take place in 2-3 years.



## CARGO

Dragon is the first commercial spacecraft to deliver cargo to the International Space Station and currently the only cargo spacecraft flying capable of returning significant cargo back to Earth. Dragon's trunk accommodates pressurized cargo in the capsule as well as unpressurized cargo in its trunk. The racks are a honeycomb carbon-aluminum construction designed for efficient packing in a zero-gravity environment. They accommodate a variety of standard-size NASA cargo bags as well

## TRUNK

Dragon's trunk supports the spacecraft during ascent to space, carries unpressurized cargo and houses Dragon's solar arrays. The trunk and solar arrays remain attached to Dragon until shortly before reentry to Earth's atmosphere. The trunk is constructed of space-proven aluminum. A key design at the heart of Merlin was first used for the Apollo lunar landing module. The Dragon spacecraft has three configurations to meet a variety of needs: cargo, crew and DragonLab. To ensure a rapid transition from cargo to crew capability, the cargo and crew configurations of Dragon are almost identical. This commonality simplifies the human rating process, allowing systems critical to flying crew to be tested and proven with the fully reusable, unmanned cargo flights. With DragonLab, essentially the same spacecraft can be used as a platform for in-space technology demonstrations and experiments.

## CREW

Dragon was designed from the outset to fly humans to space. Under an agreement with NASA, SpaceX is making upgrades to Dragon to allow for crew carrying capability. These upgrades to Dragon are safety and reliable crew transport vehicle, with seating for seven, life-support systems, controls with manual capability, and a powered launch escape system. Upgrades to Dragon are currently in progress. Dragon's first manned test flight is expected to take place in the next 2-3 years.

## DRAGONLAB

DragonLab is a free-flying, unmanned platform designed for research and testing in the microgravity environment between and the International Space Station. It can transport payloads, experiments, instruments, and sensors into space and back to Earth on missions ranging from one week to two years. DragonLab can support life sciences research and sensor testing, space physics and relativity experiments, radiation effects research, and many other microgravity tests.

## Sign up for our Newsletter

Keep yourself up to date with all things space and SpaceX, get specialized for students, Enthusiasts and Professionals

elonmusk@spacex.com

○ Student ○ Enthusiast ○ Pro

SIGN UP




ABOUT

We have launch and test facilities in Texas, California and Florida

EXPLORE

CAREERS

Make your space dreams come true in Engineering, Manufacturing and Operations

SEE OPENING



2016 © Space Exploration Technologies Corp.

PHONE

SPACEX

SpaceX designs, manufactures and launches advanced rockets and spacecraft. The company was founded in 2002 to revolutionize space technology, with the ultimate goal of enabling people to live on other planets. SpaceX is a private company founded in 2002 by CEO and Lead Designer Elon Musk. The company has more than 4,000 employees at its headquarters in Hawthorne, California; launch facilities at Cape Canaveral Air Force Station, Florida, and Vandenberg Air Force Base, California; a rocket-development facility in McGregor, Texas; and offices in Houston, Texas; Chantilly, Virginia; and Washington, DC. SpaceX has suppliers in all 50 states.

SpaceX currently uses two leased orbital launch sites, Cape Canaveral Air Force Station Space Launch Complex 40 in Florida and Vandenberg Air Force Base, Space Launch Complex 4 in California and has one suborbital facility in use, the SpaceX Rocket Development and Test Facility in Texas, with an additional high- altitude suborbital test facility under construction in New Mexico. In addition, SpaceX has leased a second orbital launch facility in Florida to accommodate both Falcon Heavy flights beginning in 2016 and crewed space missions in 2017. SpaceX is also building a commercial-only launch facility at a site near Brownsville, Texas expected to take flight no earlier than late 2018.

SpaceX offers competitive pricing for its Falcon 9 and Falcon Heavy launch services. Modest discounts are available, for contractually committed, multi-launch purchases. SpaceX can also offer crew transportation services to commercial customers seeking to transport astronauts to alternate LEO destinations.

FALCON 9 PRICING
Standard payment plan: $62M

FALCON HEAVY
Standard payment plan: $90M

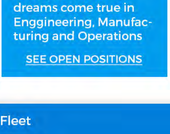
## Sign up for our Newsletter

Keep yourself up to date with all things space and SpaceX, get specialized for students, Enthusiasts and Professionals

elonmusk@spacex.com

○ Student ○ Enthusiast ○ Pro

SIGN UP




SHOP

Shop the Team colors!

Get Sweatshirts, T-shirts and accessories with free shipping!

Make your space dreams come true in Enggineering, Manufacturing and Operations

SEE OPEN POSITIONS

Fleet

About

News

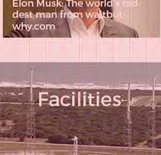
Launch Manifest

Shop

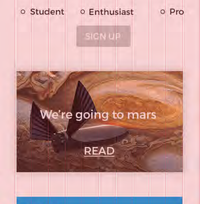
PHONE

SPACEX

SpaceX designs, manufactures and launches advanced rockets and spacecraft. The company was founded in 2002 to revolutionize space technology, with the ultimate goal of enabling people to live on other planets. SpaceX is a private company founded in 2002 by CEO and Lead Designer Elon Musk. The company has more than 4,000 employees at its headquarters in Hawthorne, California; launch facilities at Cape Canaveral Air Force Station, Florida, and Vandenberg Air Force Base, California; a rocket-development facility in McGregor, Texas; and offices in Houston, Texas; Chantilly, Virginia; and Washington, DC. SpaceX has suppliers in all 50 states.



SpaceX currently uses two leased orbital launch sites, Cape Canaveral Air Force Station Space Launch Complex 40 in Florida and Vandenberg Air Force Base, Space Launch Complex 4 in California and has one suborbital facility in use, the SpaceX Rocket Development and Test Facility in Texas, with an additional high- altitude suborbital test facility under construction in New Mexico. In addition, SpaceX has leased a second orbital launch facility in Florida to accommodate both Falcon Heavy flights beginning in 2016 and crewed space missions in 2017. SpaceX is also building a commercial-only launch facility at a site near Brownsville, Texas expected to take flight no earlier than late 2018.




SpaceX offers competitive pricing for its Falcon 9 and Falcon Heavy launch services. Modest discounts are available, for contractually committed, multi-launch purchases. SpaceX can also offer crew transportation services to commercial customers seeking to transport astronauts to alternate LEO destinations.

FALCON 9 PRICING
Standard payment plan: $62M

FALCON HEAVY
Standard payment plan: $90M

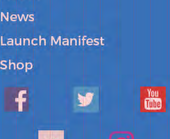
## Sign up for our Newsletter

Keep yourself up to date with all things space and SpaceX, get specialized for students, Enthusiasts and Professionals

elonmusk@spacex.com

○ Student ○ Enthusiast ○ Pro

SIGN UP




SHOP

Shop the Team colors!

Get Sweatshirts, T-shirts and accessories with free shipping!

Make your space dreams come true in Enggineering, Manufacturing and Operations

SEE OPEN POSITIONS

Fleet

About

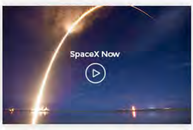
News

Launch Manifest

Shop

TABLET

SpaceX designs, manufactures and launches advanced rockets and spacecraft. The company was founded in 2002 to revolutionize space technology, with the ultimate goal of enabling people to live on other planets. SpaceX is a private company founded in 2002 by CEO and Lead Designer Elon Musk. The company has more than 4,000 employees at its headquarters in Hawthorne, California; launch facilities at Cape Canaveral Air Force Station, Florida, and Vandenberg Air Force Base, California; a rocket- development facility in McGregor, Texas; and offices in Houston, Texas; Chantilly, Virginia; and Washington, DC. SpaceX has suppliers in all 50 states.




SpaceX has gained worldwide attention for a series of historic milestones. It is the only private company ever to return a spacecraft from low-Earth orbit, which it first accomplished in December 2010. The company made history again in May 2012 when its Dragon spacecraft attached to the International Space Station, exchanged cargo payloads, and returned safely to Earth — a technically challenging feat previously accomplished only by governments. Since then Dragon has delivered cargo to and from the space station multiple times, providing regular cargo resupply missions for NASA. Under a $1.6 billion contract with NASA, SpaceX is flying numerous cargo resupply missions to the International Space Station, for a total of at least 20 flights under the Commercial Resupply Services contract. In 2016, NASA awarded SpaceX a second version of that contract that will cover a minimum of 6 additional flights from 2019 onward. In the near future, SpaceX will carry crew as part of NASA's Commercial Crew Program as well. Dragon was designed from the outset to carry astronauts and SpaceX is in the process of upgrading Dragon to make it crew-ready. SpaceX is the world's fastest-growing provider of launch services and has over 70 future missions on its manifest, representing over $10 billion in contracts. These include commercial satellite launches as well as NASA and other US Government missions.

SpaceX currently uses two leased orbital launch sites, Cape Canaveral Air Force Station Space Launch Complex 40 in Florida and Vandenberg Air Force Base, Space Launch Complex 4 in California and has one suborbital facility in use, the SpaceX Rocket Development and Test Facility in Texas, with an additional high- altitude suborbital test facility under construction in New Mexico. In addition, SpaceX has leased a second orbital launch facility in Florida to accommodate both Falcon Heavy flights beginning in 2016 and crewed space missions in 2017. SpaceX is also building a commercial-only launch facility at a site near Brownsville, Texas expected to take flight no earlier than late 2018.

Learn more about the facilities

SpaceX offers competitive pricing for its Falcon 9 and Falcon Heavy launch services. Modest discounts are available, for contractually committed, multi-launch purchases. SpaceX can also offer crew transportation services to commercial customers seeking to transport astronauts to alternate LEO destinations.

FALCON 9 PRICING
Standard payment plan: $62M

FALCON HEAVY
Standard payment plan: $90M

# Contact Us

SPACEX HEADQUARTERS
Rocket Road Hawthorne, California
310-363-6000

SPACEX WASHINGTON D.C.
1030 15th Street N.W.
Suite 220E Washington, DC
20005-1503

MEDIA INQUIRIES
media@spacex.com

SALES INQUIRIES
sales@spacex.com

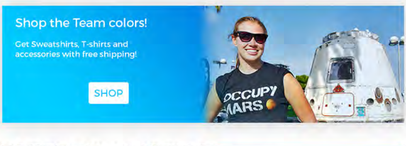
## Sign up for our Newsletter

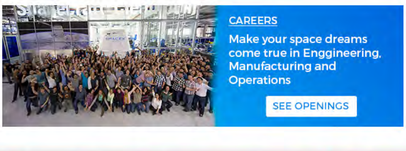
Keep yourself up to date with all things space and SpaceX, get specialized for students, Enthusiasts and Professionals

elonmusk@spacex.com

○ Student ○ Enthusiast ○ Pro

SIGN UP






2016 © Space Exploration Technologies Corp.

TABLET

SpaceX designs, manufactures and launches advanced rockets and spacecraft. The company was founded in 2002 to revolutionize space technology, with the ultimate goal of enabling people to live on other planets. SpaceX is a private company founded in 2002 by CEO and Lead Designer Elon Musk. The company has more than 4,000 employees at its headquarters in Hawthorne, California; launch facilities at Cape Canaveral Air Force Station, Florida, and Vandenberg Air Force Base, California; a rocket- development facility in McGregor, Texas; and offices in Houston, Texas; Chantilly, Virginia; and Washington, DC. SpaceX has suppliers in all 50 states.

SpaceX has gained worldwide attention for a series of historic milestones. It is the only private company ever to return a spacecraft from low-Earth orbit, which it first accomplished in December 2010. The company made history again in May 2012 when its Dragon spacecraft attached to the International Space Station, exchanged cargo payloads, and returned safely to Earth — a technically challenging feat previously accomplished only by governments. Since then Dragon has delivered cargo to and from the space station multiple times, providing regular cargo resupply missions for NASA. Under a $1.6 billion contract with NASA, SpaceX is flying numerous cargo resupply missions to the International Space Station, for a total of at least 20 flights under the Commercial Resupply Services contract. In 2016, NASA awarded SpaceX a second version of that contract that will cover a minimum of 6 additional flights from 2019 onward. In the near future, SpaceX will carry crew as part of NASA's Commercial Crew Program as well. Dragon was designed from the outset to carry astronauts and SpaceX is in the process of upgrading Dragon to make it crew-ready. SpaceX is the world's fastest-growing provider of launch services and has over 70 future missions on its manifest, representing over $10 billion in contracts. These include commercial satellite launches as well as NASA and other US Government missions.

SpaceX currently uses two leased orbital launch sites, Cape Canaveral Air Force Station Space Launch Complex 40 in Florida and Vandenberg Air Force Base, Space Launch Complex 4 in California and has one suborbital facility in use, the SpaceX Rocket Development and Test Facility in Texas, with an additional high- altitude suborbital test facility under construction in New Mexico. In addition, SpaceX has leased a second orbital launch facility in Florida to accommodate both Falcon Heavy flights beginning in 2016 and crewed space missions in 2017. SpaceX is also building a commercial-only launch facility at a site near Brownsville, Texas expected to take flight no earlier than late 2018.

Learn more about the facilities

SpaceX offers competitive pricing for its Falcon 9 and Falcon Heavy launch services. Modest discounts are available, for contractually committed, multi-launch purchases. SpaceX can also offer crew transportation services to commercial customers seeking to transport astronauts to alternate LEO destinations.

FALCON 9 PRICING
Standard payment plan: $62M

FALCON HEAVY
Standard payment plan: $90M

# Contact Us

SPACEX HEADQUARTERS
Rocket Road Hawthorne, California
310-363-6000

SPACEX WASHINGTON D.C.
1030 15th Street N.W.
Suite 220E Washington, DC
20005-1503

MEDIA INQUIRIES
media@spacex.com

SALES INQUIRIES
sales@spacex.com

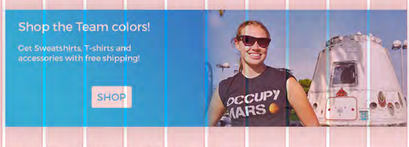
## Sign up for our Newsletter

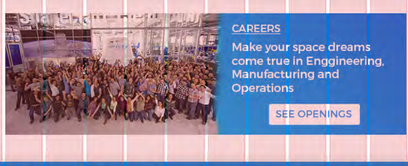
Keep yourself up to date with all things space and SpaceX, get specialized for students, Enthusiasts and Professionals

elonmusk@spacex.com

○ Student ○ Enthusiast ○ Pro

SIGN UP






2016 © Space Exploration Technologies Corp.

SpaceX designs, manufactures and launches advanced rockets and spacecraft. The company was founded in 2002 to revolutionize space technology, with the ultimate goal of enabling people to live on other planets. SpaceX is a private company founded in 2002 by CEO and Lead Designer Elon Musk. The company has more than 4,000 employees at its headquarters in Hawthorne, California; launch facilities at Cape Canaveral Air Force Station, Florida, and Vandenberg Air Force Base, California; a rocket- development facility in McCregor, Texas; and offices in Houston, Texas; Chantilly, Virginia; and Washington, DC. SpaceX has suppliers in all 50 states.

SpaceX has gained worldwide attention for a series of historic milestones. It is the only private company ever to return a spacecraft from low-Earth orbit, which it first accomplished in December 2010. The company made history again in May 2012 when its Dragon spacecraft attached to the International Space Station, exchanged cargo payloads, and returned safely to Earth — a technically challenging feat previously accomplished only by governments. Since then Dragon has delivered cargo to and from the space station multiple times, providing regular cargo resupply missions for NASA. Under a $1.6 billion contract with NASA, SpaceX is flying numerous cargo resupply missions to the International Space Station, for a total of at least 20 flights under the Commercial Resupply Services contract. In 2016, NASA awarded SpaceX a second version of that contract that will cover a minimum of 6 additional flights from 2019 onward. In the near future, SpaceX will carry crew as part of NASA's Commercial Crew Program as well. Dragon was designed from the outset to carry astronauts and SpaceX is in the process of upgrading Dragon to make it crew-ready. SpaceX is the world's fastest-growing provider of launch services and has over 70 future missions on its manifest, representing over $10 billion in contracts. These include commercial satellite launches as well as NASA and other US Government missions.

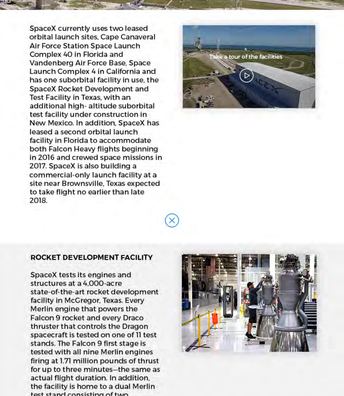
LAUNCH MANIFEST

Falcon 9 launch on 4th December

BLOG



Elon Musk: The world's raddest man from waitbutwhy.com



# Facilities

SpaceX currently uses two leased orbital launch sites, Cape Canaveral Air Force Station Space Launch Complex 40 in Florida and Vandenberg Air Force Base, Space Launch Complex 4 in California and has one suborbital facility in use, the SpaceX Rocket Development and Test Facility in Texas, with an additional high- altitude suborbital test facility under construction in New Mexico. In addition, SpaceX has leased a second orbital launch facility in Florida to accommodate both Falcon Heavy flights beginning in 2016 and crewed space missions in 2017. SpaceX is also building a commercial-only launch facility at a site near Brownsville, Texas expected to take flight no earlier than late 2018.

### ROCKET DEVELOPMENT FACILITY

SpaceX tests its engines and structures at a 4,000-acre state-of-the-art rocket development facility in McCregor, Texas. Every Merlin engine that powers the Falcon 9 rocket and every Draco thruster that controls the Dragon spacecraft is tested on one of 11 test stands. The Falcon 9 first stage is tested with all nine Merlin engines firing at 1.71 million pounds of thrust for up to three minutes—the same as actual flight duration. In addition, the facility is home to a dual Merlin test stand consisting of two independent engine testing bays, allowing SpaceX to test up to 400 Merlin engines a year. Established in 2003, the site now averages two tests per day. Read about our fleet: We have two rockets and one spaceship



### LAUNCH FACILITIES

#### FLORIDA CAPE CANAVERAL AIR FORCE STATION, SPACE LAUNCH COMPLEX 40

The site's location on the southeast coast of the US provides access to a wide range of low and medium inclination orbits frequently used by communications and Earth-observing satellites and by supply missions to the International Space Station. The site also allows access to geostationary orbits, as well as departures to the Moon and interplanetary destinations. Situated on Cape Canaveral Air Force Station, with Patrick Air Force Base to the south and NASA's Kennedy Space Center to the north, SLC-40 benefits from many support services in the region, including security and launch range control, weather monitoring, ground support infrastructure, payload processing facilities, and long-range tracking cameras capable of observing launches from liftoff through stage separation and second-stage ignition out over the Atlantic.

#### CALIFORNIA VANDENBERG AIR FORCE BASE, SPACE LAUNCH COMPLEX 4 EAST

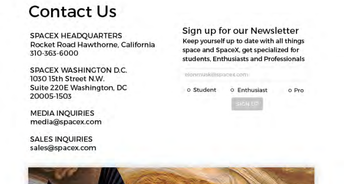
The site's location on the California coastline provides customers with access to high inclination and polar orbits, frequently used by satellite communication constellations, defense intelligence and Earth-observing satellites, and some lunar missions. Launches from Vandenberg heading straight south traverse open ocean all the way to the Antarctic, by which time the vehicles have long since reached orbit. SpaceX's operations at SLC-4E benefit from Vandenberg's security and launch range control, weather monitoring, ground support infrastructure, payload processing facilities, and long-range tracking cameras capable of observing launches from liftoff through stage separation and second-stage ignition over the Pacific.

#### FLORIDA KENNEDY SPACE CENTER, SPACE LAUNCH COMPLEX 39A

SpaceX is modifying Kennedy Space Center's historic Space Launch Complex 39A, home of the Apollo and Space Shuttle programs, for flights of the Falcon 9 and Falcon Heavy rocket. In addition to commercial satellite launches and space station resupply missions, LC-39A will support crewed launches of the Dragon spacecraft for NASA. Once operational, LC-39A will have a hangar, a payload processing annex, and a transporter-erector, along with modifications to the existing crawlerway, the fixed and rotating service structures, and pad deck. As with LC-40, LC-39A benefits from many local support services including security and launch range control, weather monitoring, ground support infrastructure, payload processing facilities, and long-range tracking cameras.

#### TEXAS SPACEX SOUTH TEXAS LAUNCH SITE

SpaceX is building the world's first commercial launch site designed for orbital missions in the Boca Chica area of South Texas. The site's southern, coastal location is uniquely optimized for orbital space launches from the continental United States – it is as close to the equator as possible, while remaining distanced from populated areas. SpaceX South Texas will be optimized for commercial launches, and will support launches of the Falcon 9 and Falcon Heavy to low-Earth orbit, geostationary orbit, and beyond.



# Services

SpaceX offers competitive pricing for its Falcon 9 and Falcon Heavy launch services. Modest discounts are available, for contractually committed, multi-launch purchases. SpaceX can also offer crew transportation services to commercial customers seeking to transport astronauts to alternate LEO destinations.

FALCON 9 PRICING
Standard payment plan: $62M

FALCON HEAVY
Standard payment plan: $90M

# Contact Us

SPACEX HEADQUARTERS
Rocket Road Hawthorne, California
310-363-6000

SPACEX WASHINGTON D.C.
1050 15th Street N.W.
Suite 220E Washington, DC
20005-1503

MEDIA INQUIRIES
media@spacex.com

SALES INQUIRIES
sales@spacex.com

### Sign up for our Newsletter

Keep yourself up to date with all things space and SpaceX, get specialized for students, Enthusiasts and Professionals

YOUR@EMAIL(Optional.com)

○ Student ○ Enthusiast ○ Pro

SIGN UP

Shop the Team colors!
Get Sweatshirts, T-shirts and accessories with free shipping!
SHOP





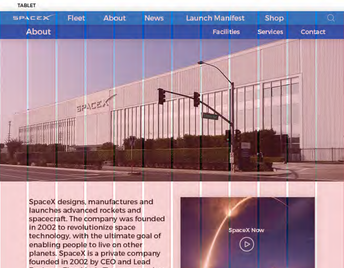

CAREERS

Make your space dreams come true in Enggineering, Manufacturing and Operations

SEE OPENINGS

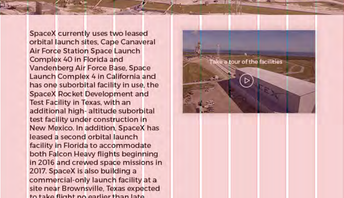


2016 © Space Exploration Technologies Corp.




SpaceX designs, manufactures and launches advanced rockets and spacecraft. The company was founded in 2002 to revolutionize space technology, with the ultimate goal of enabling people to live on other planets. SpaceX is a private company founded in 2002 by CEO and Lead Designer Elon Musk. The company has more than 4,000 employees at its headquarters in Hawthorne, California. launch facilities at Cape Canaveral Air Force Station, Florida, and Vandenberg Air Force Base, California. a rocket- development facility in McGregor, Texas. and offices in Houston, Texas; Chantilly, Virginia; and Washington, DC. SpaceX has suppliers in all 50 states.

SpaceX has gained worldwide attention for a series of historic milestones. It is the only private company ever to return a spacecraft from low-Earth orbit, which it first accomplished in December 2010. The company made history again in May 2012 when its Dragon spacecraft attached to the International Space Station, exchanged cargo payloads, and returned safely to Earth – a technically challenging feat previously accomplished only by governments. Since then Dragon has delivered cargo to and from the space station multiple times, providing regular cargo resupply missions for NASA. Under a $1.6 billion contract with NASA, SpaceX is flying numerous cargo resupply missions to the International Space Station, for a total of at least 20 flights under the Commercial Resupply Services contract. In 2016, NASA awarded SpaceX a second version of that contract that will cover a minimum of 6 additional flights from 2019 onward. In the near future, SpaceX will carry crew as part of NASA's Commercial Crew Program as well. Dragon was designed from the outset to carry astronauts and SpaceX is in the process of upgrading Dragon to make it crew-ready. SpaceX is the world's fastest-growing provider of launch services and has over 70 future missions on its manifest, representing over $10 billion in contracts. These include commercial satellite launches as well as NASA and other US Government missions.




SpaceX currently uses two leased orbital launch sites, Cape Canaveral Air Force Station Space Launch Complex 40 in Florida and Vandenberg Air Force Base, Space Launch Complex 4 in California and has one suborbital facility in use, the SpaceX Rocket Development and Test Facility in Texas, with an additional high-altitude suborbital test facility under construction in New Mexico. In addition, SpaceX has leased a second orbital launch facility in Florida to accommodate both Falcon Heavy flights beginning in 2016 and crewed space missions in 2017. SpaceX is also building a commercial-only launch facility at a site near Brownsville, Texas expected to take flight no earlier than late 2018.

### ROCKET DEVELOPMENT FACILITY

SpaceX tests its engines and structures at a 4,000-acre state-of-the-art rocket development facility in McGregor, Texas. Every Merlin engine that powers the Falcon 9 rocket and every Draco thruster that controls the Dragon spacecraft is tested on one of 11 test stands. The Falcon 9 first stage is tested with all nine Merlin engines firing at 1.71 million pounds of thrust for up to three minutes–the same as actual flight duration. In addition, the facility is home to a dual Merlin test stand consisting of two independent engine testing bays, allowing SpaceX to test up to 400 Merlin engines a year. Established in 2003, the site now averages two tests per day. Read about our fleet: We have two rockets and one spaceship

### LAUNCH FACILITIES

#### FLORIDA CAPE CANAVERAL AIR FORCE STATION, SPACE LAUNCH COMPLEX 40

The site's location on the southeast coast of the US provides access to a wide range of low and medium inclination orbits frequently used by communications and Earth-observing satellites and by supply missions to the International Space Station. The site also allows access to geostationary orbits, as well as departures to the Moon and interplanetary destinations. Situated on Cape Canaveral Air Force Station, with Patrick Air Force Base to the south and NASA's Kennedy Space Center to the north, SLC-40 benefits from many support services in the region, including security and launch range control, weather monitoring, ground support infrastructure, payload processing facilities, and long-range tracking cameras capable of observing launches from liftoff through stage separation and second-stage ignition out over the Atlantic.

#### CALIFORNIA VANDENBERG AIR FORCE BASE, SPACE LAUNCH COMPLEX 4 EAST

The site's location on the California coastline provides customers with access to high inclination and polar orbits, frequently used by satellite communication constellations, defense intelligence and Earth-observing satellites, and some lunar missions. Launches from Vandenberg heading straight south traverse open ocean all the way to the Antarctic, by which time the vehicles have long since reached orbit. SpaceX's operations at SLC-4E benefit from Vandenberg's security and launch range control, weather monitoring, ground support infrastructure, payload processing facilities, and long-range tracking cameras capable of observing launches from liftoff through stage separation and second-stage ignition over the Pacific.

#### FLORIDA KENNEDY SPACE CENTER, SPACE LAUNCH COMPLEX 39A

SpaceX is modifying Kennedy Space Center's historic Space Launch Complex 39A, home of the Apollo and Space Shuttle programs, for flights of the Falcon 9 and Falcon Heavy rocket. In addition to commercial satellite launches and space station resupply missions, LC-39A will support crewed launches of the Dragon spacecraft for NASA. Once operational, LC-39A will have a hangar, a payload processing annex, and a transporter-erector, along with modifications to the existing crawlerway, the fixed and rotating service structures, and pad deck. As with LC-40, LC-39A benefits from many local support services including security and launch range control, weather monitoring, ground support infrastructure, payload processing facilities, and long-range tracking cameras.

#### TEXAS SPACEX SOUTH TEXAS LAUNCH SITE

SpaceX is building the world's first commercial launch site designed for orbital missions in the Boca Chica area of South Texas. The site's southern, coastal location is uniquely optimized for orbital space launches from the continental United States – it is as close to the equator as possible, while remaining distanced from populated areas. SpaceX South Texas will be optimized for commercial launches, and will support launches of the Falcon 9 and Falcon Heavy to low-Earth orbit, geostationary orbit, and beyond.

SpaceX offers competitive pricing for its Falcon 9 and Falcon Heavy launch services. Modest discounts are available, for contractually committed, multi-launch purchases. SpaceX can also offer crew transportation services to commercial customers seeking to transport astronauts to alternate LEO destinations.

FALCON 9 PRICING
Standard payment plan: $62M

FALCON HEAVY
Standard payment plan: $90M

## Contact Us

SPACEX HEADQUARTERS
Rocket Road Hawthorne, California
310-363-6000

SPACEX WASHINGTON D.C.
1030 15th Street N.W.
Suite 220E Washington, DC
20005-1503

MEDIA INQUIRIES
media@spacex.com

SALES INQUIRIES
sales@spacex.com

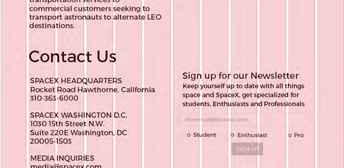
### Sign up for our Newsletter

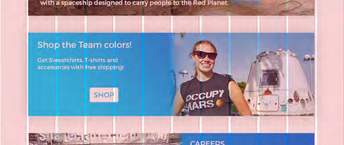
Keep yourself up to date with all things space and SpaceX, get specialized for students, Enthusiasts and Professionals

YOUR EMAIL ADDRESS

○ Student ○ Enthusiast ○ Pro

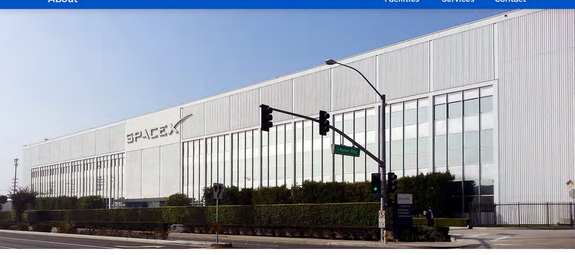
SIGN UP



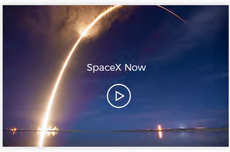


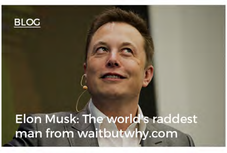



2016 © Space Exploration Technologies Corp.



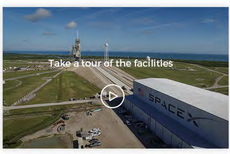

SpaceX designs, manufactures and launches advanced rockets and spacecraft. The company was founded in 2002 to revolutionize space technology, with the ultimate goal of enabling people to live on other planets. SpaceX is a private company founded in 2002 by CEO and Lead Designer Elon Musk. The company has more than 4,000 employees at its headquarters in Hawthorne, California; launch facilities at Cape Canaveral Air Force Station, Florida, and Vandenberg Air Force Base, California; a rocket-development facility in McGregor, Texas; and offices in Houston, Texas; Chantilly, Virginia; and Washington, DC. SpaceX has suppliers in all 50 states.



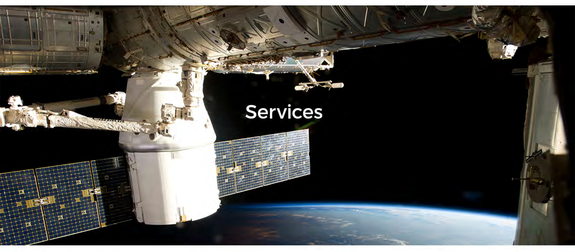



SpaceX has gained worldwide attention for a series of historic milestones. It is the only private company ever to return a spacecraft from low-Earth orbit, which it first accomplished in December 2010. The company made history again in May 2012 when its Dragon spacecraft attached to the International Space Station, exchanged cargo payloads, and returned safely to Earth — a technically challenging feat previously accomplished only by governments. Since then Dragon has delivered cargo to and from the space station multiple times, providing regular cargo resupply missions for NASA. Under a $1.6 billion contract with NASA, SpaceX is flying numerous cargo resupply missions to the International Space Station, for a total of at least 20 flights under the Commercial Resupply Services contract. In 2016, NASA awarded SpaceX a second version of that contract that will cover a minimum of 6 additional flights from 2019 onward. In the near future, SpaceX will carry crew as part of NASA's Commercial Crew Program as well. Dragon was designed from the outset to carry astronauts and SpaceX is in the process of upgrading Dragon to make it crew-ready. SpaceX is the world's fastest-growing provider of launch services and has over 70 future missions on its manifest, representing over $10 billion in contracts. These include commercial satellite launches as well as NASA and other

SpaceX currently uses two leased orbital launch sites, Cape Canaveral Air Force Station Space Launch Complex 40 in Florida and Vandenberg Air Force Base, Space Launch Complex 4 in California and has one suborbital facility in use, the SpaceX Rocket Development and Test Facility in Texas, with an additional high- altitude suborbital test facility under construction in New Mexico. In addition, SpaceX has leased a second orbital launch facility in Florida to accommodate both Falcon Heavy flights beginning in 2016 and crewed space missions in 2017. SpaceX is also building a commercial-only launch facility at a site near Brownsville, Texas expected to take flight no earlier than late 2018.




Learn more about Facilities




SpaceX offers competitive pricing for its Falcon 9 and Falcon Heavy launch services. Modest discounts are available, for contractually committed, multi-launch purchases. SpaceX can also offer crew transportation services to commercial customers seeking to transport astronauts to alternate LEO destinations.

FALCON 9 PRICING
Standard payment plan: $62M

FALCON HEAVY
Standard payment plan: $90M

## Contact Us

SPACEX HEADQUARTERS
Rocket Road Hawthorne, California
310-363-6000

SPACEX WASHINGTON D.C.
1030 15th Street N.W.
Suite 220E Washington, DC 20005-1503

MEDIA INQUIRIES
media@spacex.com

SALES INQUIRIES
sales@spacex.com

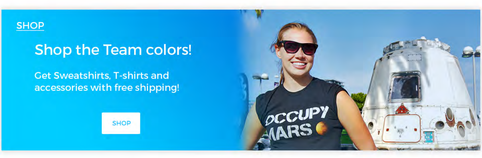
### Sign up for our Newsletter

Keep yourself up to date with all things space and SpaceX, get specialized for students, Enthusiasts and Professionals

elonmusk@spacex.com

○ Student ○ Enthusiast ○ Pro

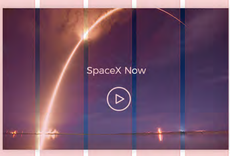
SIGN UP





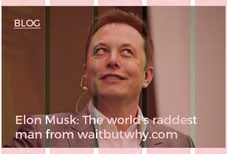

2016 © Space Exploration Technologies Corp.

SpaceX designs, manufactures and launches advanced rockets and spacecraft. The company was founded in 2002 to revolutionize space technology, with the ultimate goal of enabling people to live on other planets. SpaceX is a private company founded in 2002 by CEO and Lead Designer Elon Musk. The company has more than 4,000 employees at its headquarters in Hawthorne, California; launch facilities at Cape Canaveral Air Force Station, Florida, and Vandenberg Air Force Base, California; a rocket-development facility in McGregor, Texas; and offices in Houston, Texas; Chantilly, Virginia; and Washington, DC. SpaceX has suppliers in all 50 states.




LAUNCH MANIFEST

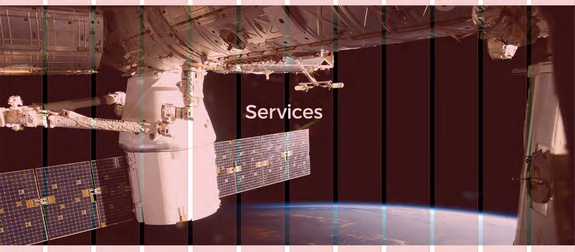
Falcon 9 launch on 4th December




SpaceX has gained worldwide attention for a series of historic milestones. It is the only private company ever to return a spacecraft from low-Earth orbit, which it first accomplished in December 2010. The company made history again in May 2012 when its Dragon spacecraft attached to the International Space Station, exchanged cargo payloads, and returned safely to Earth — a technically challenging feat previously accomplished only by governments. Since then Dragon has delivered cargo to and from the space station multiple times, providing regular cargo resupply missions for NASA. Under a $1.6 billion contract with NASA, SpaceX is flying numerous cargo resupply missions to the International Space Station, for a total of at least 20 flights under the Commercial Resupply Services contract. In 2016, NASA awarded SpaceX a second version of that contract that will cover a minimum of 6 additional flights from 2019 onward. In the near future, SpaceX will carry crew as part of NASA's Commercial Crew Program as well. Dragon was designed from the outset to carry astronauts and SpaceX is in the process of upgrading Dragon to make it crew-ready. SpaceX is the world's fastest-growing provider of launch services and has over 70 future missions on its manifest, representing over $10 billion in contracts. These include commercial satellite launches as well as NASA and other

SpaceX currently uses two leased orbital launch sites, Cape Canaveral Air Force Station Space Launch Complex 40 in Florida and Vandenberg Air Force Base, Space Launch Complex 4 in California and has one suborbital facility in use, the SpaceX Rocket Development and Test Facility in Texas, with an additional high- altitude suborbital test facility under construction in New Mexico. In addition, SpaceX has leased a second orbital launch facility in Florida to accommodate both Falcon Heavy flights beginning in 2016 and crewed space missions in 2017. SpaceX is also building a commercial-only launch facility at a site near Brownsville, Texas expected to take flight no earlier than late 2018.

Learn more about Facilities




SpaceX offers competitive pricing for its Falcon 9 and Falcon Heavy launch services. Modest discounts are available, for contractually committed, multi-launch purchases. SpaceX can also offer crew transportation services to commercial customers seeking to transport astronauts to alternate LEO destinations.

FALCON 9 PRICING
Standard payment plan: $62M

FALCON HEAVY
Standard payment plan: $90M

## Contact Us

SPACEX HEADQUARTERS
Rocket Road Hawthorne, California
310-363-6000

SPACEX WASHINGTON D.C.
1030 15th Street N.W.
Suite 220E Washington, DC 20005-1503

MEDIA INQUIRIES
media@spacex.com

SALES INQUIRIES
sales@spacex.com

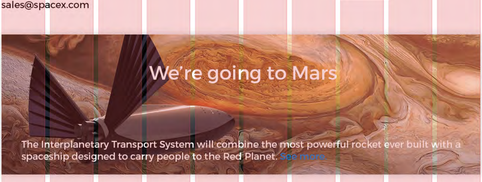
## Sign up for our Newsletter

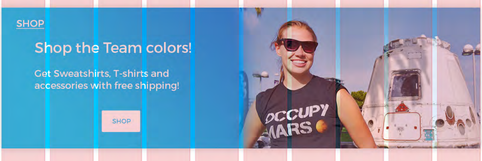
Keep yourself up to date with all things space and SpaceX, get specialized for students, Enthusiasts and Professionals

elonmusk@spacex.com

○ Student ○ Enthusiast ○ Pro

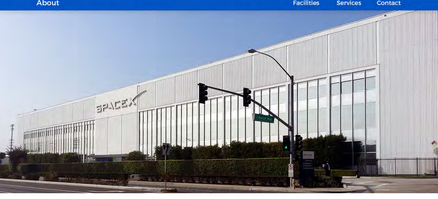
SIGN UP



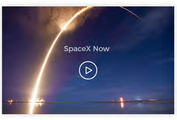





2016 © Space Exploration Technologies Corp.




SpaceX designs, manufactures and launches advanced rockets and spacecraft. The company was founded in 2002 to revolutionize space technology, with the ultimate goal of enabling people to live on other planets. SpaceX is a private company founded in 2002 by CEO and Lead Designer Elon Musk. The company has more than 4,000 employees at its headquarters in Hawthorne, California, launch facilities at Cape Canaveral Air Force Station, Florida, and Vandenberg Air Force Base, California; a rocket-development facility in McGregor, Texas; and offices in Houston, Texas; Chantilly, Virginia; and Washington, DC. SpaceX has suppliers in all 50 states.

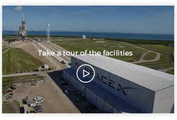



LAUNCH MANIFEST

Falcon 9 launch on 4th December

SpaceX has gained worldwide attention for a series of historic milestones. It is the only private company ever to return a spacecraft from low-Earth orbit, which it first accomplished in December 2010. The company made history again in May 2012 when its Dragon spacecraft attached to the International Space Station, exchanged cargo payloads, and returned safely to Earth — a technically challenging feat previously accomplished only by governments. Since then Dragon has delivered cargo to and from the space station multiple times, providing regular cargo resupply missions for NASA. Under a $1.6 billion contract with NASA, SpaceX is flying numerous cargo resupply missions to the International Space Station, for a total of at least 20 flights under the Commercial Resupply Services contract. In 2016, NASA awarded SpaceX a second version of that contract that will cover a minimum of 6 additional flights from 2019 onward. In the near future, SpaceX will carry crew as part of NASA's Commercial Crew Program as well. Dragon was designed from the outset to carry astronauts and SpaceX is in the process of upgrading Dragon to make it crew-ready. SpaceX is the world's fastest-growing provider of launch services and has over 70 future missions on its manifest, representing over $10 billion in contracts. These include commercial satellite launches as well as NASA and other

SpaceX currently uses two leased orbital launch sites, Cape Canaveral Air Force Station Space Launch Complex 40 in Florida and Vandenberg Air Force Base, Space Launch Complex 4 in California and has one suborbital facility in use, the SpaceX Rocket Development and Test Facility in Texas, with an additional high-altitude suborbital test facility under construction in New Mexico. In addition, SpaceX has leased a second orbital launch facility in Florida to accommodate both Falcon Heavy flights beginning in 2016 and crewed space missions in 2017. SpaceX is also building a commercial-only launch facility at a site near Brownsville, Texas expected to take flight no earlier than late 2018.




## ROCKET DEVELOPMENT FACILITY

SpaceX tests its engines and structures at a 4,000-acre state-of-the-art rocket development facility in McGregor, Texas. Every Merlin engine that powers the Falcon 9 rocket and every Draco thruster that controls the Dragon spacecraft is tested on one of 11 test stands. The Falcon 9 first stage is tested with all nine Merlin engines firing at 1.71 million pounds of thrust for up to three minutes—the same as actual flight duration. In addition, the facility is home to a dual Merlin test stand consisting of two independent engine testing bays, allowing SpaceX to test up to 400 Merlin engines a year. Established in 2003, the site now averages two tests per day. Read about our fleet: We have two rockets and one spaceship

## LAUNCH FACILITIES

FLORIDA CAPE CANAVERAL AIR FORCE STATION, SPACE LAUNCH COMPLEX 40

The site's location on the southeast coast of the US provides access to a wide range of low and medium inclination orbits frequently used by communications and Earth-observing satellites and by supply missions to the International Space Station. The site also allows access to geostationary orbits, as well as departures to the Moon and interplanetary destinations. Situated on Cape Canaveral Air Force Station, with Patrick Air Force Base to the south and NASA's Kennedy Space Center to the north, SLC-40 benefits from many support services in the region, including security and launch range control, weather monitoring, ground support infrastructure, payload processing facilities, and long-range tracking cameras capable of observing launches from liftoff through stage separation and second-stage ignition out over the

CALIFORNIA VANDENBERG AIR FORCE BASE, SPACE LAUNCH COMPLEX 4 EAST

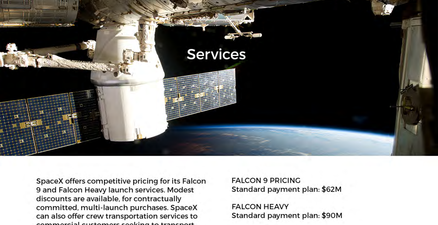
The site's location on the California coastline provides customers with access to high inclination and polar orbits, frequently used by satellite communication constellations, defense intelligence and Earth-observing satellites, and some lunar missions. Launches from Vandenberg heading straight south traverse open ocean all the way to the Antarctic, by which time the vehicles have long since reached orbit. SpaceX's operations at SLC-4E benefit from Vandenberg's security and launch range control, weather monitoring, ground support infrastructure, payload processing facilities, and long-range tracking cameras capable of observing launches from liftoff through stage separation and second-stage ignition over the Pacific.

FLORIDA KENNEDY SPACE CENTER, SPACE LAUNCH COMPLEX 39A

SpaceX is modifying Kennedy Space Center's historic Space Launch Complex 39A, home of the Apollo and Space Shuttle programs, for flights of the Falcon 9 and Falcon Heavy rocket. In addition to commercial satellite launches and space station resupply missions, LC-39A will support crewed launches of the Dragon spacecraft for NASA. Once operational, LC-39A will have a hangar, a payload processing annex, and a transporter-erector, along with modifications to the existing crawlerway, the fixed and rotating service structures, and pad deck. As with LC-40, LC-39A benefits from many local support services including security and launch range control, weather monitoring, ground support infrastructure, payload processing facilities, and long-range tracking cameras.

TEXAS SPACEX SOUTH TEXAS LAUNCH SITE

SpaceX is building the world's first commercial launch site designed for orbital missions in the Boca Chica area of South Texas. The site's southern, coastal location is uniquely optimized for orbital space launches from the continental United States – it is as close to the equator as possible, while remaining distanced from populated areas. SpaceX South Texas will be optimized for commercial launches, and will support launches of the Falcon 9 and Falcon Heavy to low-Earth orbit, geostationary orbit, and beyond.




SpaceX offers competitive pricing for its Falcon 9 and Falcon Heavy launch services. Modest discounts are available, for contractually committed, multi-launch purchases. SpaceX can also offer crew transportation services to commercial customers seeking to transport astronauts to alternate LEO destinations.

FALCON 9 PRICING
Standard payment plan: $62M

FALCON HEAVY
Standard payment plan: $90M

## Contact Us

SPACEX HEADQUARTERS
Rocket Road Hawthorne, California
310-363-6000

SPACEX WASHINGTON D.C.
1050 15th Street N.W.
Suite 220E Washington, DC 20005-1503

MEDIA INQUIRIES
media@spacex.com

SALES INQUIRIES
sales@spacex.com

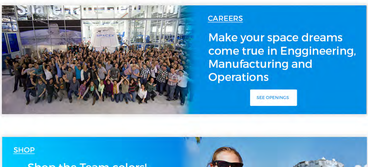
## Sign up for our Newsletter

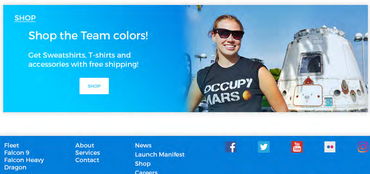
Keep yourself up to date with all things space and SpaceX, get specialized for students, Enthusiasts and Professionals

elonmusk@spacex.com

○ Student ○ Enthusiast ○ Pro

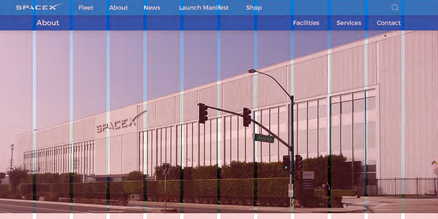
SIGN UP



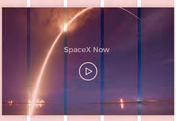






2016 © Space Exploration Technologies Corp.



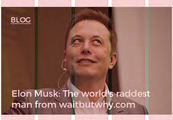

SpaceX designs, manufactures and launches advanced rockets and spacecraft. The company was founded in 2002 to revolutionize space technology, with the ultimate goal of enabling people to live on other planets. SpaceX is a private company founded in 2002 by CEO and Lead Designer Elon Musk. The company has more than 4,000 employees at its headquarters in Hawthorne, California, launch facilities at Cape Canaveral Air Force Station, Florida, and Vandenberg Air Force Base, California; a rocket-development facility in McGregor, Texas; and offices in Houston, Texas; Chantilly, Virginia; and Washington, DC. SpaceX has suppliers in all 50 states.




LAUNCH MANIFEST

Falcon 9 launch on 4th December

BLOG



Elon Musk: The world's raddest man from waitbutwhy.com

SpaceX has gained worldwide attention for a series of historic milestones. It is the only private company ever to return a spacecraft from low-Earth orbit, which it first accomplished in December 2010. The company made history again in May 2012 when its Dragon spacecraft attached to the International Space Station, exchanged cargo payloads, and returned safely to Earth — a technically challenging feat previously accomplished only by governments. Since then Dragon has delivered cargo to and from the space station multiple times, providing regular cargo resupply missions for NASA. Under a $1.6 billion contract with NASA, SpaceX is flying numerous cargo resupply missions to the International Space Station, for a total of at least 20 flights under the Commercial Resupply Services contract. In 2016, NASA awarded SpaceX a second version of that contract that will cover a minimum of 6 additional flights from 2019 onward. In the near future, SpaceX will carry crew as part of NASA's Commercial Crew Program as well. Dragon was designed from the outset to carry astronauts and SpaceX is in the process of upgrading Dragon to make it crew-ready. SpaceX is the world's fastest-growing provider of launch services and has over 70 future missions on its manifest, representing over $10 billion in contracts. These include commercial satellite launches as well as NASA and other

# Facilities

SpaceX currently uses two leased orbital launch sites, Cape Canaveral Air Force Station Space Launch Complex 40 in Florida and Vandenberg Air Force Base, Space Launch Complex 4 in California and has one suborbital facility in use, the SpaceX Rocket Development and Test Facility in Texas, with an additional high-altitude suborbital test facility under construction in New Mexico. In addition, SpaceX has leased a second orbital launch facility in Florida to accommodate both Falcon Heavy flights beginning in 2016 and crewed space missions in 2017. SpaceX is also building a commercial-only launch facility at a site near Brownsville, Texas expected to take flight no earlier than late 2018.

## ROCKET DEVELOPMENT FACILITY

SpaceX tests its engines and structures at a 4,000-acre state-of-the-art rocket development facility in McGregor, Texas. Every Merlin engine that powers the Falcon 9 rocket and every Draco thruster that controls the Dragon spacecraft is tested on one of 11 test stands. The Falcon 9 first stage is tested with all nine Merlin engines firing at 1.71 million pounds of thrust for up to three minutes—the same as actual flight duration. In addition, the facility is home to a dual Merlin test stand consisting of two independent engine testing bays, allowing SpaceX to test up to 400 Merlin engines a year. Established in 2003, the site now averages two tests per day. Read about our fleet. We have two rockets and one spaceship

## LAUNCH FACILITIES

FLORIDA CAPE CANAVERAL AIR FORCE STATION, SPACE LAUNCH COMPLEX 40

The site's location on the southeast coast of the US provides access to a wide range of low and medium inclination orbits frequently used by communications and Earth-observing satellites and by supply missions to the International Space Station. The site also allows access to geostationary orbits, as well as departures to the Moon and interplanetary destinations. Situated on Cape Canaveral Air Force Station, with Patrick Air Force Base to the south and NASA's Kennedy Space Center to the north, SLC-40 benefits from many support services in the region, including security and launch range control, weather monitoring, ground support infrastructure, payload processing facilities, and long-range tracking cameras capable of observing launches from liftoff through stage separation and second-stage ignition out over the

CALIFORNIA VANDENBERG AIR FORCE BASE, SPACE LAUNCH COMPLEX 4 EAST

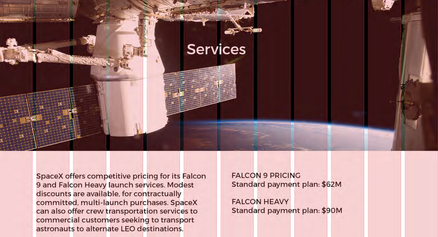
The site's location on the California coastline provides customers with access to high inclination and polar orbits, frequently used by satellite communication constellations, defense intelligence and Earth-observing satellites, and some lunar missions. Launches from Vandenberg heading straight south traverse open ocean all the way to the Antarctic, by which time the vehicles have long since reached orbit. SpaceX's operations at SLC-4E benefit from Vandenberg's security and launch range control, weather monitoring, ground support infrastructure, payload processing facilities, and long-range tracking cameras capable of observing launches from liftoff through stage separation and second-stage ignition over the Pacific.

FLORIDA KENNEDY SPACE CENTER, SPACE LAUNCH COMPLEX 39A

SpaceX is modifying Kennedy Space Center's historic Space Launch Complex 39A, home of the Apollo and Space Shuttle programs, for flights of the Falcon 9 and Falcon Heavy rocket. In addition to commercial satellite launches and space station resupply missions, LC-39A will support crewed launches of the Dragon spacecraft for NASA. Once operational, LC-39A will have a hangar, a payload processing annex, and a transporter-erector, along with modifications to the existing crawlerway, the fixed and rotating service structures, and pad deck. As with LC-40, LC-39A benefits from many local support services including security and launch range control, weather monitoring, ground support infrastructure, payload processing facilities, and long-range tracking cameras.

TEXAS SPACEX SOUTH TEXAS LAUNCH SITE

SpaceX is building the world's first commercial launch site designed for orbital missions in the Boca Chica area of South Texas. The site's southern, coastal location is uniquely optimized for orbital space launches from the continental United States. It is as close to the equator as possible, while remaining distanced from populated areas. SpaceX South Texas will be optimized for commercial launches, and will support launches of the Falcon 9 and Falcon Heavy to low-Earth orbit, geostationary orbit, and beyond.



# Services

SpaceX offers competitive pricing for its Falcon 9 and Falcon Heavy launch services. Modest discounts are available, for contractually committed, multi-launch purchases. SpaceX can also offer crew transportation services to commercial customers seeking to transport astronauts to alternate LEO destinations.

FALCON 9 PRICING
Standard payment plan: $62M

FALCON HEAVY
Standard payment plan: $90M

## Contact Us

SPACEX HEADQUARTERS
Rocket Road Hawthorne, California
310-363-6000

SPACEX WASHINGTON D.C.
1050 15th Street N.W.
Suite 220E Washington, DC 20005-1503

MEDIA INQUIRIES
media@spacex.com

SALES INQUIRIES
sales@spacex.com

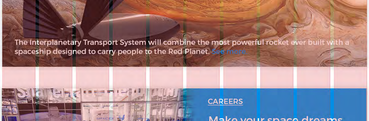
## Sign up for our Newsletter

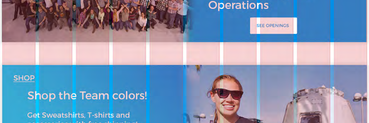
Keep yourself up to date with all things space and SpaceX, get specialized for students, Enthusiasts and Professionals

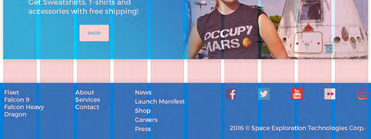
elonmusk@spacex.com

○ Student ○ Enthusiast ○ Pro

SIGN UP






2016 © Space Exploration Technologies Corp.