

Thaxted Astronomical Society

News

Features

NF0143

SpaceX Starship Rocket

Assembled By Robotic Arms

<https://www.dailymail.co.uk/sciencetech/article-10498929/SpaceX-successfully-assembles-400ft-Starship-rocket-using-trio-giant-robot-arms.html>

SpaceX successfully assembles a full 400ft Starship rocket using a trio of giant robot arms

Daily Mail 11th February 2022 >

- **The massive Starship will be the most powerful rocket ever launched into orbit**
- **Deep-space vehicle will take humans back to the moon and possibly on to Mars**
- **Starship was due for first orbital launch in January but this was delayed to March**

The massive 400ft Starship rocket has been assembled on a launch platform by SpaceX,

Starship, which will return humans to the lunar surface and could one day ferry more than 100 people a time to Mars, is set to make its first orbital flight in March.

The latest development in Boca Chica saw the firm stack a two-stage Starship rocket - with the upper stage being lifted on to the Super Heavy booster using a trio of robotic arms attached to the 480ft launch tower.

This is only the second time the full Starship - the largest launch vehicle prototype ever produced - has been assembled.

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This 480ft tower includes arms that can grapple Starship into place.

It lifted the upper stage 260ft off the ground and lowered it on top of the Super Heavy booster.

Eye witnesses said there were several days of troubleshooting and false-stars, as well as weeks of testing, before they lifted the 85 ton spacecraft.

Known as S20, this prototype was held for about an hour using two smaller stabilization arms.

Then late last night, with the tip of the nosecone just short of the top of the tower, the Mechazilla arm swung the upper stage 45 degrees, until it was above the booster.

Another arm, the quick-disconnect arm, swung in to stabilize Super Heavy, before the upper stage could be placed on top.

This is a significant achievement for the launch firm, taking just three hours from start of the lift, to having a fully mated rocket.

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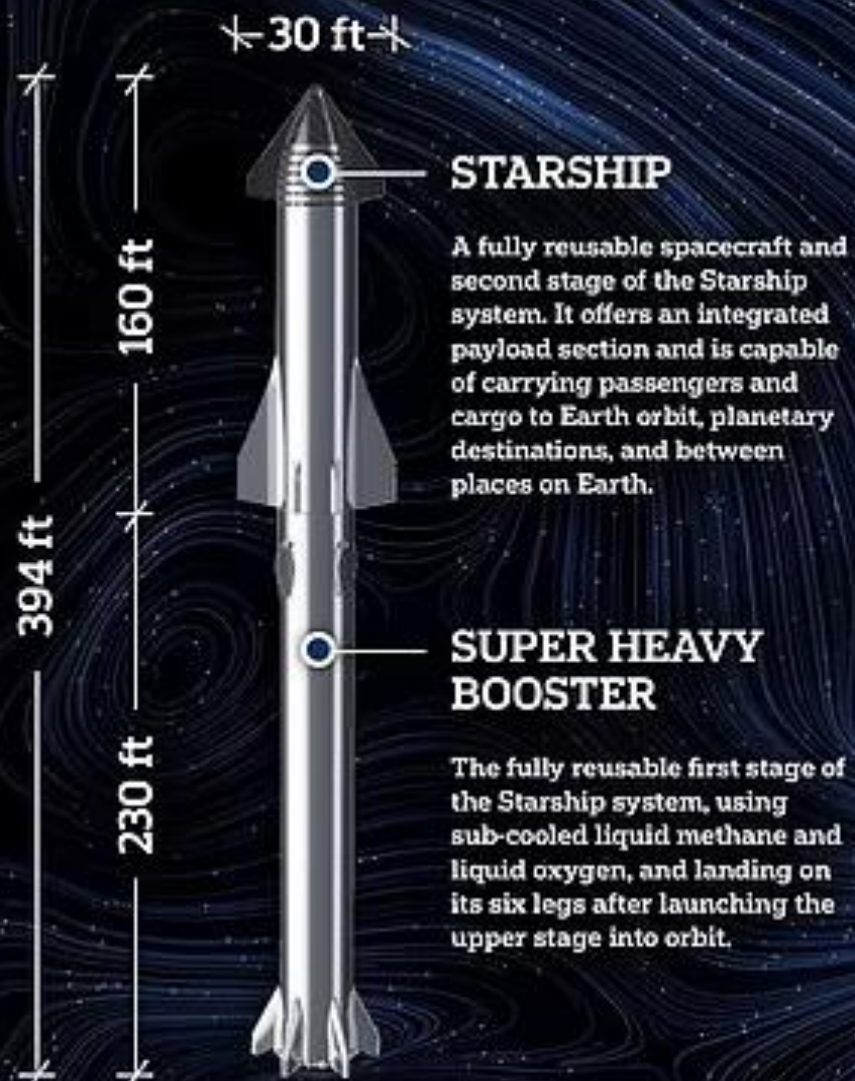
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SPACEX PREPARE MASSIVE STARSHIP WITH SUPER HEAVY BOOSTER



30 ft

STARSHIP

A fully reusable spacecraft and second stage of the Starship system. It offers an integrated payload section and is capable of carrying passengers and cargo to Earth orbit, planetary destinations, and between places on Earth.

SUPER HEAVY BOOSTER

The fully reusable first stage of the Starship system, using sub-cooled liquid methane and liquid oxygen, and landing on its six legs after launching the upper stage into orbit.

394 ft
160 ft
230 ft

305 ft

STATUE OF LIBERTY

Liberty Island, Manhattan, New York City. Dedicated in October 28, 1886



Maximum payload
over 220,000 lb

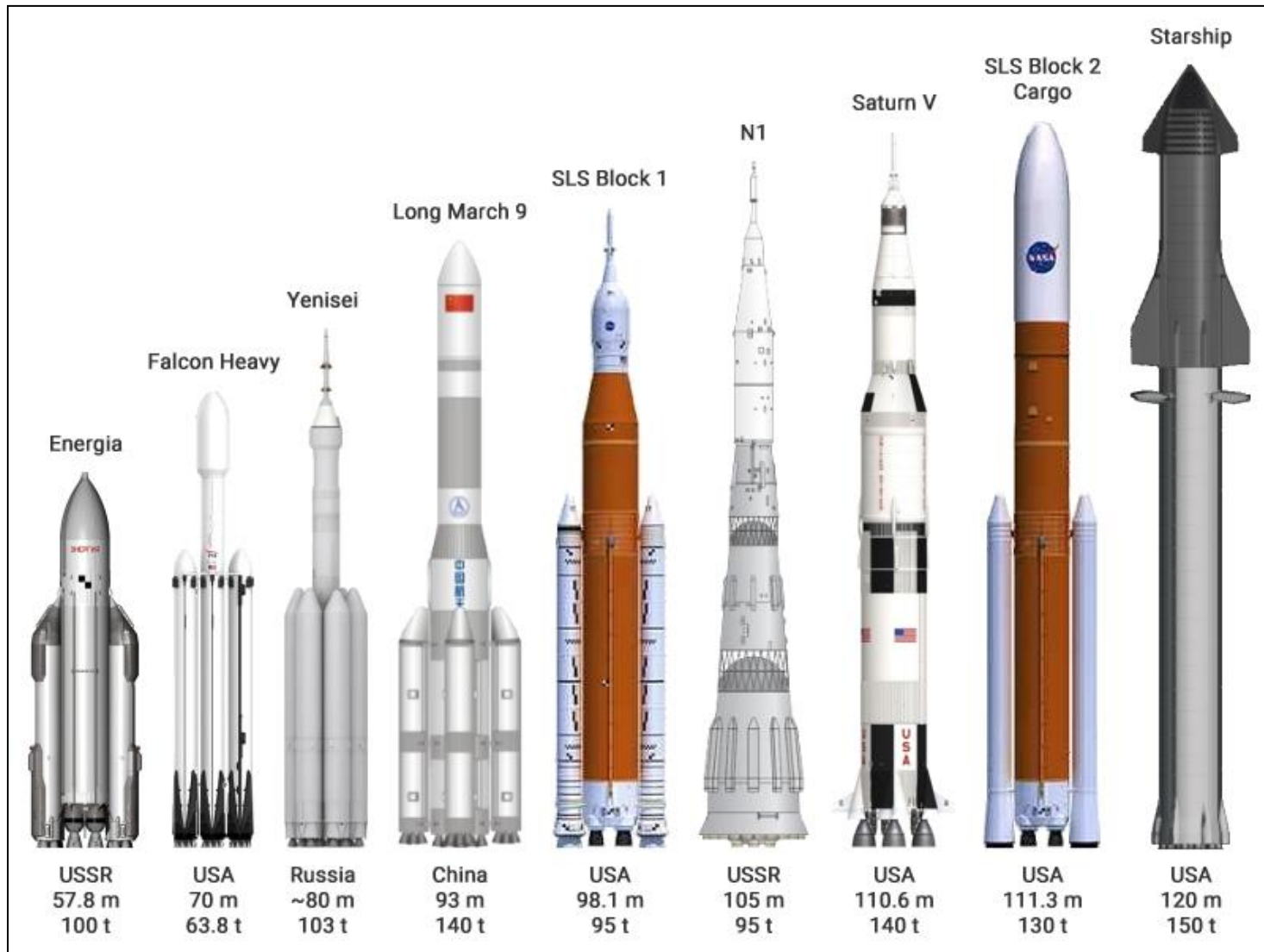
+10
View gallery

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STARSHIP AND SUPER HEAVY LAUNCHER

SpaceX Starship is made up of two stages,

the Super Heavy booster

And

the Starship vehicle on top.

Super Heavy fires and gives Starship the boost it needs to reach orbit.

Once in space,

Starship separates and continues its journey, while Super Heavy returns to land on the ground.

It is designed to be a reusable launch vehicle that could put humans on Mars, according to founder Elon Musk



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STARSHIP AND SUPER HEAVY LAUNCHER

Super Heavy

The first stage, or booster, of the next-generation launch system with a gross liftoff mass of over three million kg.

It uses sub-cooled liquid methane and liquid oxygen (CH₄/LOX) propellants.

The booster will return to land at the launch site on its six legs.

Height: 70m (230ft)

Diameter: 9m (30ft)

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Starship

Starship is the fully reusable spacecraft and second stage of the Starship system.

It offers an integrated payload section and is capable of carrying passengers and cargo to Earth orbit, planetary destinations, and between destinations on Earth.

Height: 50m (160ft)

Diameter 9m (30ft)