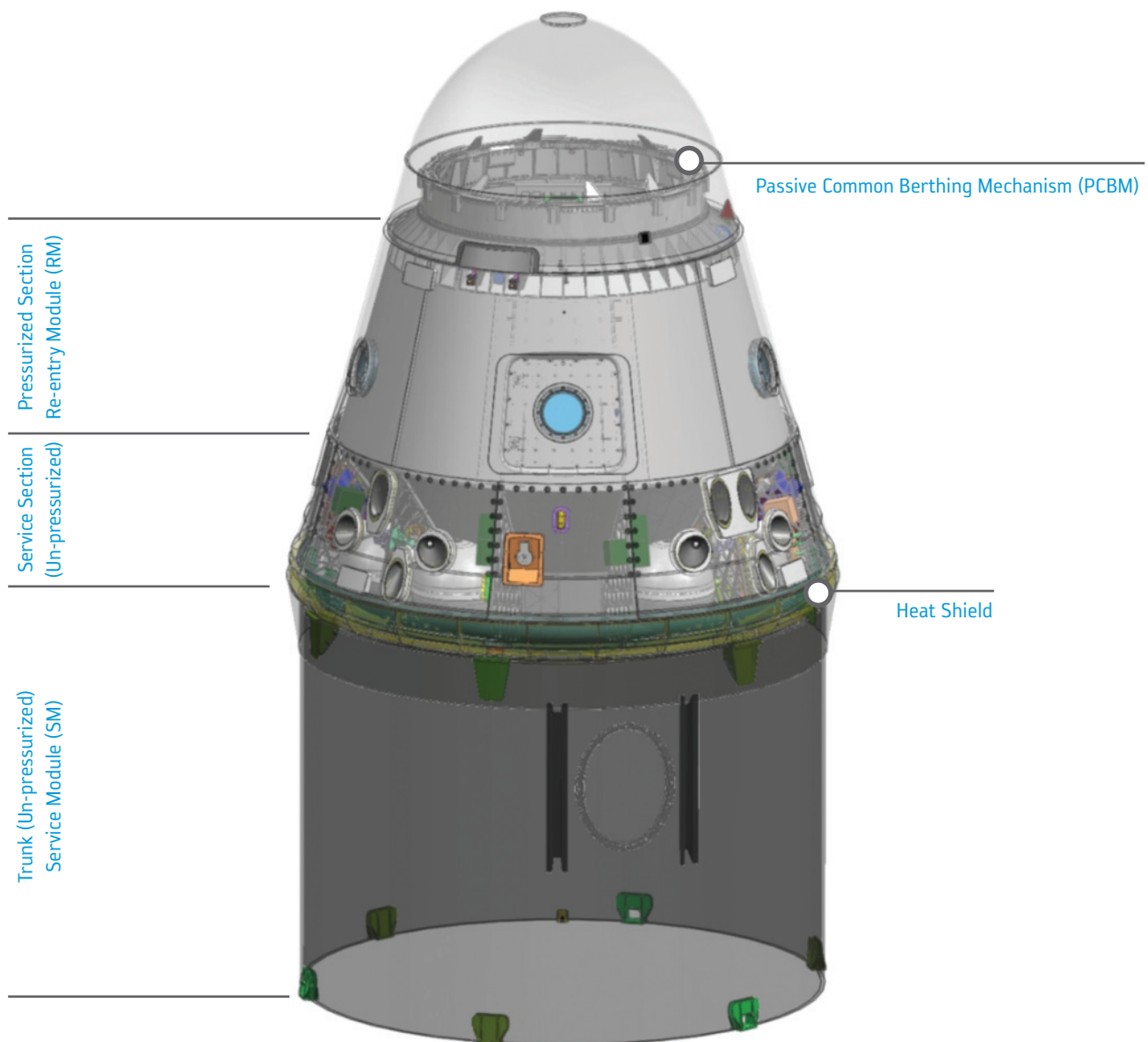


→ SPACEX DRAGON

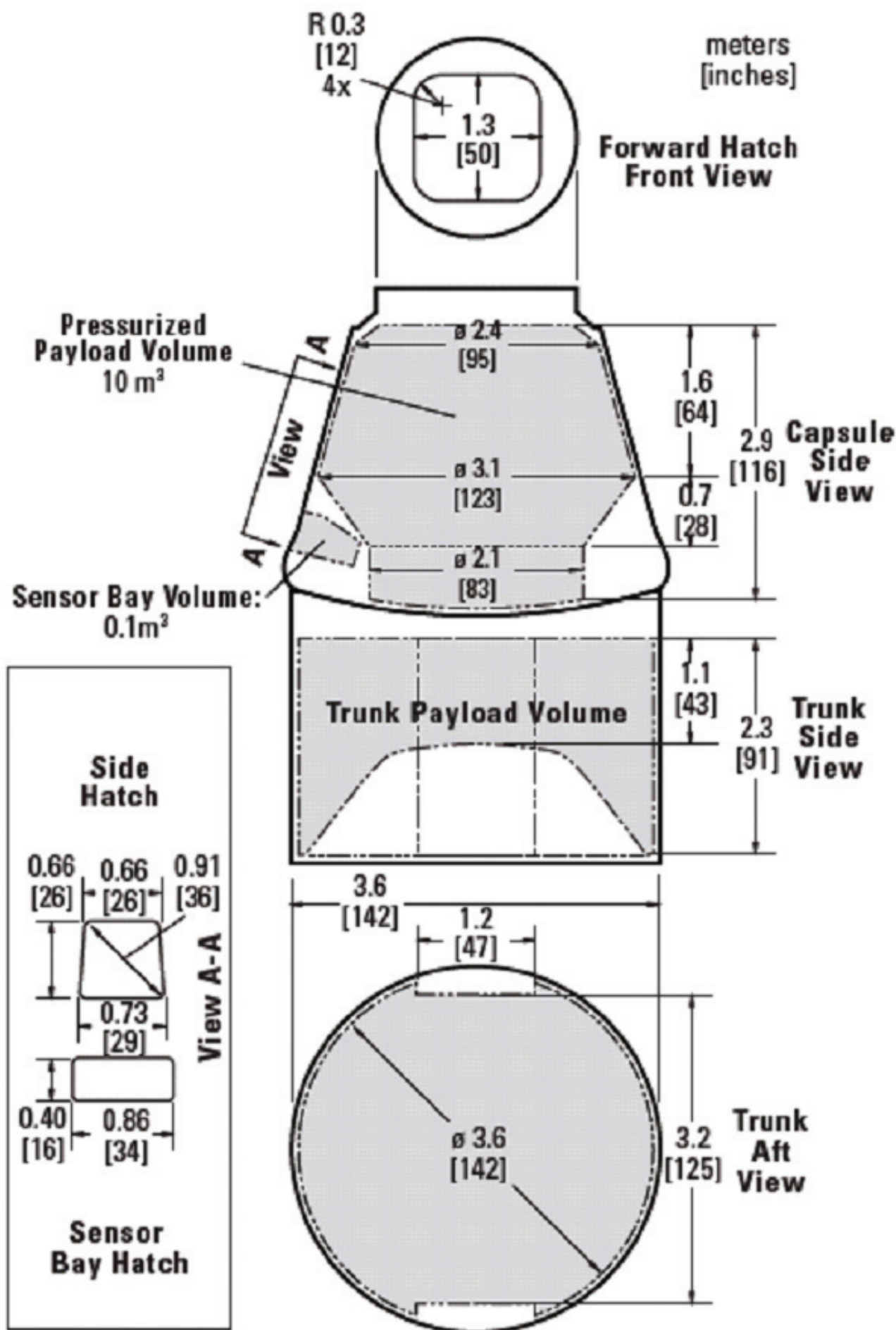
US Commercial servicing and logistic vehicle

The Dragon is an un-manned automatic vehicle which is put in orbit by the Falcon 9 launcher. It will transport to the International Space Station and back to Earth pressurized cargo (active and passive, including temperature conditioned samples).

To ensure a rapid transition from cargo to crew capability, the cargo and crew configurations of Dragon are almost identical, with the exception of the crew escape system, the life support system and onboard controls that allow the crew to take over control from the flight computer when needed.



	PROJECT: International Space Station		
	TITLE: SpaceX Dragon	DOCUMENT N°: ESA-HSO-COU-028	REV. 2.0





Dragon Spacecraft in Cargo Configuration.

Specifications

DIMENSIONS

Length: 6,200 mm
Largest diameter: 3,600 mm

MASS BUDGET

Mass at launch (max): 12,000 kg

CARGO VOLUME AS DECLARED BY SPACEX

10 m³ pressurized payload volume
14 m³ unpressurized payload volume

CARGO POWER

Up to 1,500 - 2,000 W average;
up to 4,000 W peak.

TRUNK

Unpressurized payload,
Solar Generators,
Radiators

RE-ENTRY MODULE

Pressurized payload, Propulsion and GNC, Rendez-vous sensors, Grapple Fixture (Space Station Robotic Manipulation System - SSRMS interface), Passive CBM, Thermal Protection, Functional Chains

MAIN CONTRACTOR

SpaceX



PROJECT: **International
Space Station**

TITLE: **SpaceX Dragon**

DOCUMENT N°:
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Utilisation Relevant Data

LAUNCH

Launch Stack:

Dragon is composed of the:

- Trunk (SM), ensuring services to the payload (P/L) module in the orbital phase and being used to accommodate un-pressurized payload;
- Re-entry Module (RM), the pressurized P/L module supporting all along the mission the P/L and the P/L operations. It also houses the propulsion system of Dragon.

Dragon is launched with the solar panels closed to the trunk. Both the orbital power generation system and heat rejection system are not active up to the insertion in orbit. Power supply during this period is provided by batteries.

Launch Vehicle: Falcon 9

Launch with partial fairing.

Launch site: SLC-40, CCAFB, Florida

First Flight: End of 2010

Flight rate: Every 6 months

ON-ORBIT

The solar arrays are deployed to ensure power supply and the heat rejection is performed via space radiators.

The system performs orbital manoeuvres and automatic rendez-vous & berthing at the International Space Station (ISS) under the supervision of the Ground Control Centre and of the ISS.

After the completion of the cargo operations at the ISS (download/upload), Dragon separates from the station and performs the de-orbiting.

RE-ENTRY

After de-orbiting the RM separates from the trunk and performs a controlled re-entry into the atmosphere (the trunk performs a destructive re-entry).

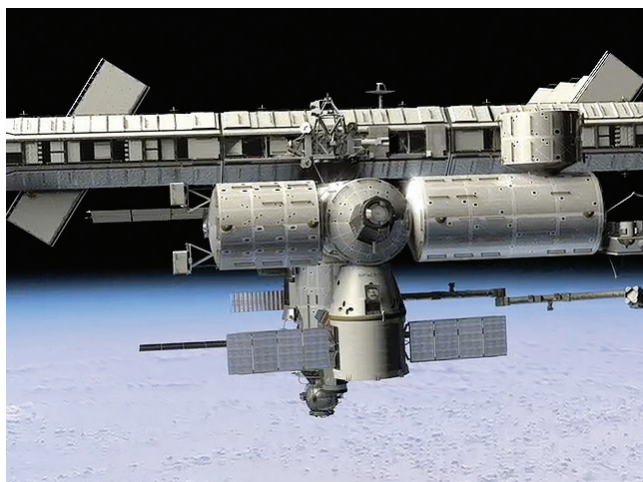
Thermal protections ensure a proper thermal environment in the RM in spite of the high aerothermal loads induced by the drag.

In the last part of re-entry a parachute system is deployed to further reduce the landing speed before splash-down.

Landing site: North Pacific Ocean



Dragon approaching the International Space Station.
Credits: NASA



Dragon berthed at the International Space Station.
Credits: NASA