Utilisation Relevant Data

Launch configuration

Fluid Science Laboratory, European Physiology Module, Biolab, European Drawer Rack, European Transportation Carrier installed. Remaining racks will be installed while on orbit.

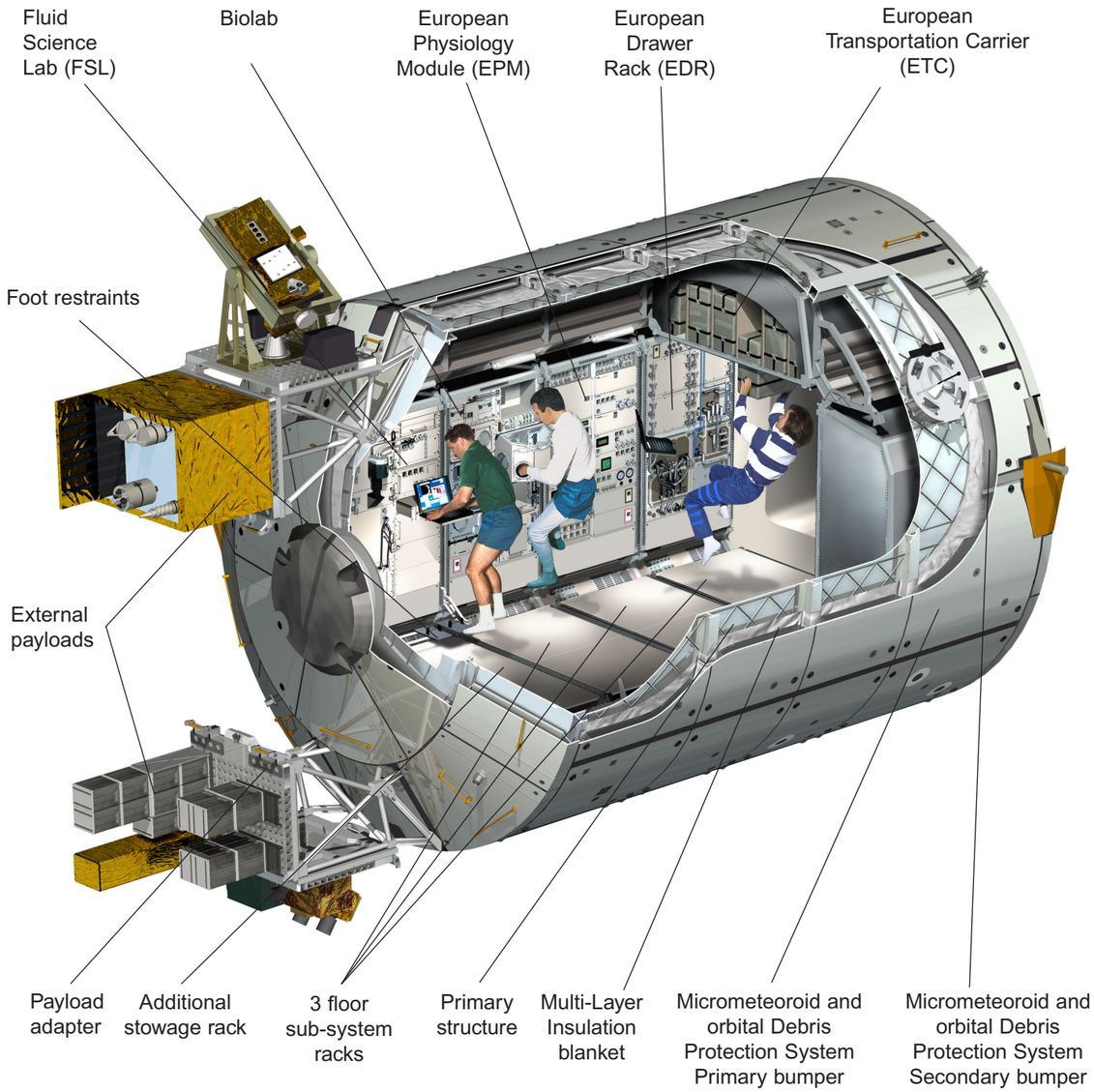
Launch vehicle:	Space Shuttle
Launch site:	Kennedy Space Center
Launch date:	after 2007

On-orbit configuration

Payload accommodation:	Attached to Node 2 starboard docking port. 10 International Standard Payload Racks (ISPR) (maximum 998 kg each) 4 external payloads (maximum 370 kg each)

Flight hardware

Biolab, Fluid Science Laboratory, European Physiology Module, European Drawer Rack, European Transportation Carrier, Data and mission computers Command/Measurement Units, High Rate Multiplexer, Mass Memory Unit, Video Camera (2), and Monitor Audio system, Master Alarm Light panel (2), Emergency Fire Extinguisher (2), Portable Breathing Apparatus (2), Inter Module Ventilation valves and fans, Thermal Control System valves, Power Distribution Unit, Vital Telemetry Computer units, Heat Exchangers, Circulation Fan Assembly and External Payload Facility (4)

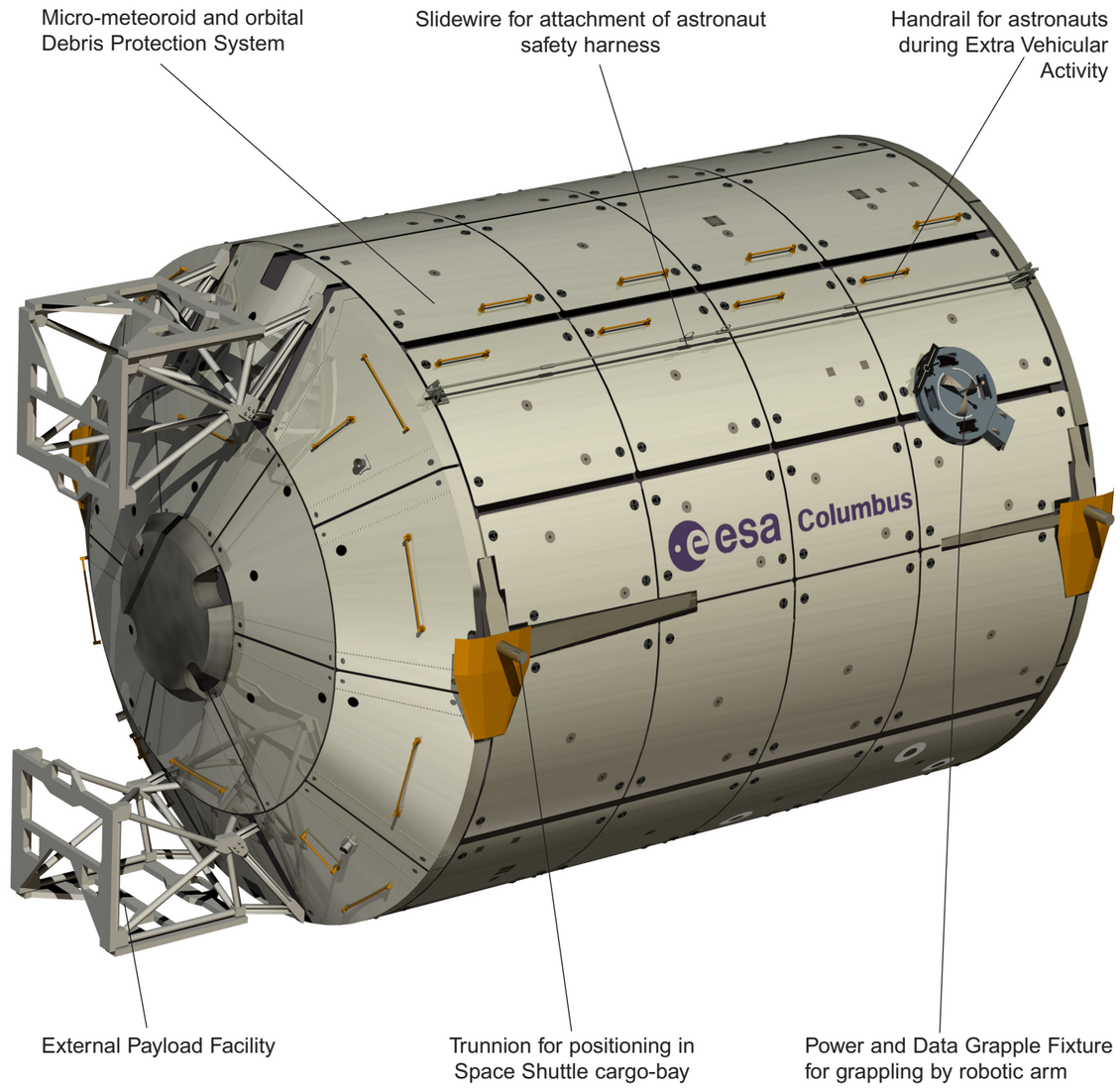


Illustrations: ESA/D. Ducros

Columbus

European research laboratory

A research laboratory which is permanently attached to the International Space Station and provides internal payload accommodation for experiments in the field of multidisciplinary research into material science, fluid physics and life science. In addition, an external payload facility hosts experiments and applications in the field of space science, Earth observation and technology.



esa	PROJECT: **International Space Station**		
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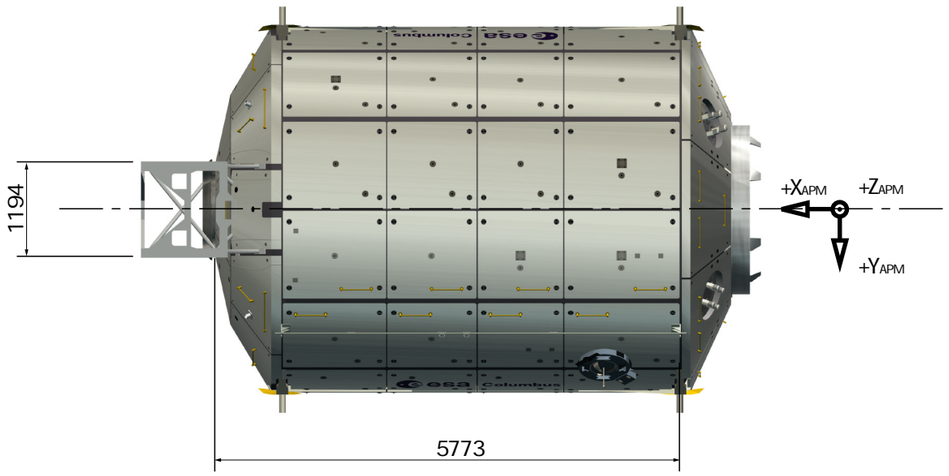

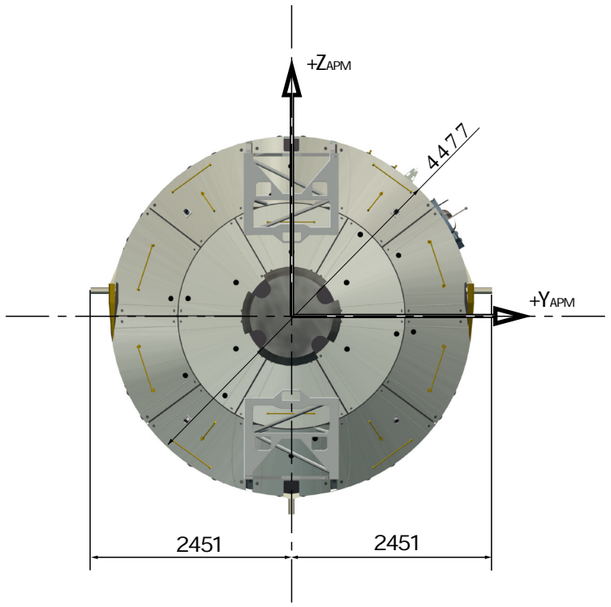

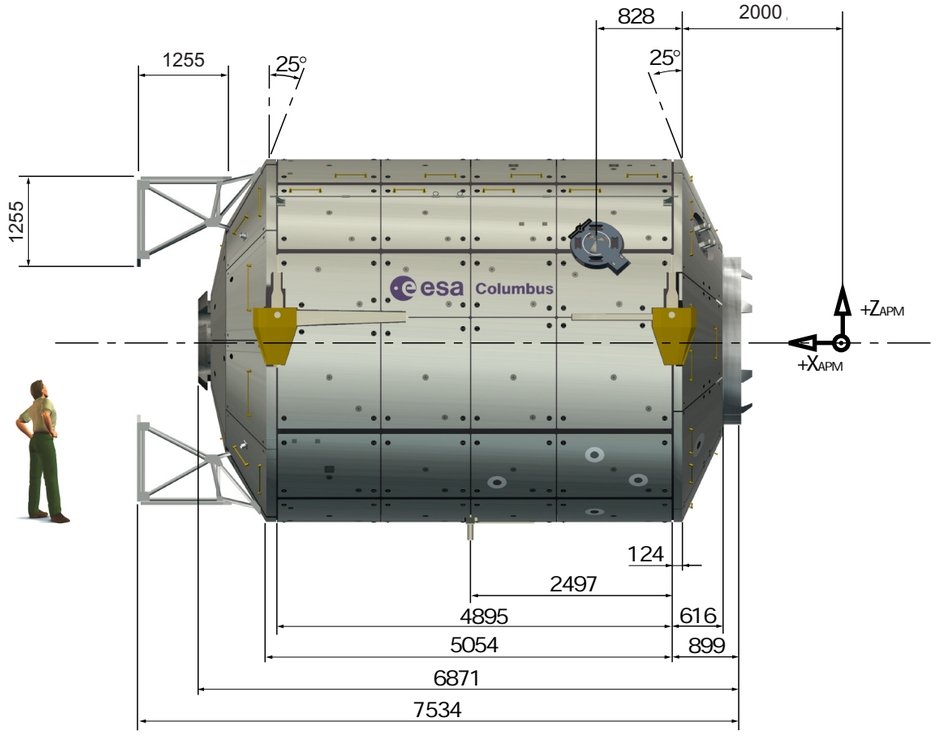

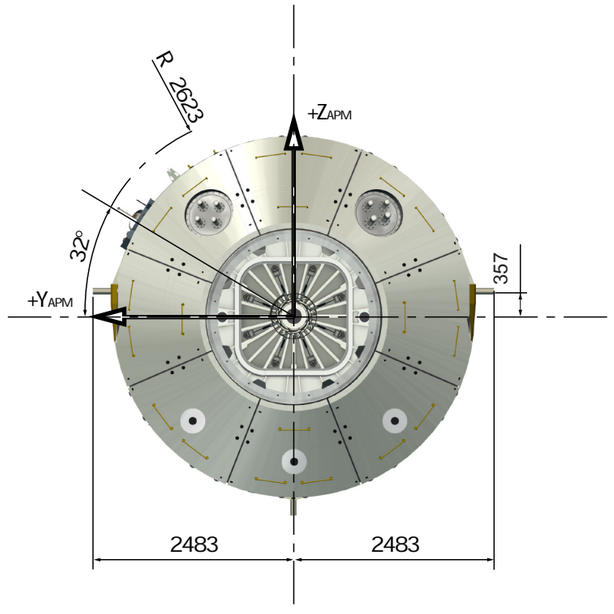

Specifications

Dimensions	
Total module length:	6,871 mm
Largest diameter:	4,477 mm
Total internal volume:	75 m^3
Volume of payload racks:	25 m^3
Mass budget	
Mass without payload:	10,275 kg
Launch mass:	12,775 kg (2,500 kg payload)
Maximum payload mass:	9,000 kg (internal) 370 kg x 4 (external)
Maximum on orbit mass:	21,000 kg
Communications infrastructure	
Down-link via Artemis:	50 Mbps (Ka-band) TBC
Down-link via TDRS:	50 Mbps (Ku-band)
	50 192 kbps (S-band)
Up-link via TDRS:	72 kbps (S-band)
Environmental control	
Supported crew:	3
Cabin temperature:	Between 16° and 27° C
Air pressure:	Between 959 and 1,013 hPa
Heat rejection:	Up to 22 kW through moderate and low temperature cooling loops
Electrical power	
Total power:	20 kW (120 V dc) provided by the station
Payload power:	13.5 kW
Construction material	
Pressure shell:	Aluminium 2219 4.8 mm thick, decreasing to 3.8 mm for the end-cones
Micrometeoroid and Debris Protection System:	Aluminium bumper made of Al-6061-T6 for the primary barrier, Kevlar/Nextel panels for secondary barrier
Thermal Protection Material:	Aluminised Kapton Multi Layer Insulation blanket
Internal secondary structure:	Aluminium 7475 Aluminium 7075 Aluminium 5056 Aluminium 2024
External Payload Facility:	Aluminium 7075 Aluminium 7050
Payload Racks:	Carbon fiber: NASA racks Aluminium 7075: ESA racks
Noise reduction material:	Heavy double acoustic barrier (Poron + Durette)
Main contractor	
	EADS Space Transportations leading a consortium of many sub-contractors

esa	PROJECT: **International Space Station**	SCALE : 1:75 DIMENSIONS : mm	
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