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## THALES ALENIA SPACE

**50% OF THE HABITABLE VOLUME OF THE INTERNATIONAL SPACE STATION**

### ➤ The International Space Station

The International Space Station (ISS) is one of the largest and most ambitious space projects created by Man, 30 years after the initial explorations on the Moon. ISS is an orbital base for research and for discovery of new knowledge, capabilities and opportunities in Space.

The ISS is being built and assembled as a joint project between the United States, Russia, Canada, Japan and the 11 European Space Agency member countries.

Conceived in the 1960s and initiated in the mid-1980s, America's large-scale space station became an international project in 1988. In-orbit assembly began in 1998 with the launch of the Russian Zarya ("dawn") functional cargo block, the first cornerstone of the ISS.

The ISS orbits at an altitude of approximately 340 km above Earth's surface and travels at an average speed of 27,700 km/h, completing 15 orbits per day. On completion in 2010, the station will weigh over 400 tons and cover an area the size of a football pitch. With a habitable volume in excess of 1,200 m<sup>3</sup>, it will be the most complex object ever designed to date. More than 40 flights will have been necessary to assemble its 100+ constituent parts.

Thanks to the sophisticated instruments already in use and the others in development phase, the ISS allows scientists to work in microgravity conditions, to conduct medical, physicist and biological research, to create new materials and to carry out technological trials. As a whole, the Space Station itself is a major "experiment", namely the existing evidence that human life can exist in orbital environments over prolonged periods of time. The construction of this advanced outpost among the stars demonstrates the extraordinary potential of the space sector when institutions and industries can cooperate at the highest levels.

**Thales Alenia Space plays a fundamental role in the ISS by contributing with more than 50% to the Station's pressurized volume. The company is involved in the ISS development since the beginning. This long-lasting knowledge has led Thales Alenia Space to accumulate an outstanding array of capabilities and skills for the construction of manned space elements, which is second only to Boeing, the main NASA contractor for the Space Station.**

### ➤ Thales Alenia Space main contribution to ISS

- Prime contractor for the design, development, qualification and integration of the **Nodes 2 & 3**, along with the provision of extensive support to NASA for the final verification and launch preparation activities at KSC-Cape Canaveral;
- Prime contractor for the development of the **Cupola** observatory, leading a team of several European subcontractors for the development of equipment items;
- Prime contractor for the design and construction of the three Multipurpose Pressurized Logistics Modules (**MPLM**). The company will also support NASA for their utilization throughout their operational lifetime;
- Major contributor to the **Columbus** laboratory development. Responsible for the definition, development and pre-integration of the entire Mechanical, Thermal, ECLSS and Harness subsystems. Main contributor for the final integration and testing phase.
- Major contractor for the design and construction of the "cargo carrier" and the integration and testing of the entire **ATV-ICC**. This involvement will continue for the next six ATV modules currently planned;
- Prime contractor for the design and construction of nine pressurized **Cygnus** modules for the ISS logistics services;
- Major contractor to ESA/EADS (through an integrated operations team set up with ASTRIUM) for the operations (e.g. Logistics Support, Engineering support activities, Mission Integration, etc.) of the ISS.