



**ANSEROS CONTRIBUTED TO  
THE ESA COLUMBUS MISSION**

## A small but crucial job....



Anseros GmbH possesses the credibility of futuristic innovation in our era of latest technologies. It is a pride for us that we contributed to the ESA COLUMBUS mission.

We did a small but very crucial job in terms of mission safety. The chambers inside the lab modules which will provide flexible research facilities during their 10 years lifespan have been thoroughly tested by ESA engineers. The rubber parts of these test chambers have been tested by the Anseros laboratory facilities in Tübingen, Germany. It was a big

task to make sure that these parts meet quality, durability and safety standards. The Anseros laboratory facilities in Tübingen offer high tech test facilities for critical applications, as for example:

- + Material testing
- + Deterioration testing
- + Ozone impinge on rubber parts
- + Rugged environment simulation

## Columbus laboratory

The Columbus laboratory is ESA's biggest single contribution to the International Space Station. The 4.5 meter diameter cylindrical module is equipped with flexible research facilities that offer extensive science capabilities. During its projected lifespan of 10 years, earth-based researchers, together with the ISS crew, will be able to conduct thousands of experiments in life sciences, material science, fluid physics and a whole host of other disciplines, all in the weightlessness of the orbit.

To keep costs low and reliability high, Columbus shares its basic structure and



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life-support systems with the Italian Space Agency's Multi-Purpose Logistics Modules (MPLM). But whereas the MPLM is aptly described as a 'van moving in space' - albeit a very sophisticated van - the 75 cubic metres of space inside Columbus contains an entire suite of science laboratories.



## Payload racks

The Columbus laboratory has room for ten International Standard Payload Racks (ISPRs), eight situated in the side walls, and two in the ceiling area. Each rack is the size of a telephone booth and able to host its own autonomous and independent laboratory, complete with power and cooling systems,

and video and data links back to researchers on Earth. ESA has developed a range of payload racks, all tailored to squeeze a maximum amount of research out of a minimum of space and to offer European scientists full access to a weightless environment that cannot possibly be duplicated on Earth.

Columbus was outfitted with five internal payload racks at launch. Biolab supports experiments on micro-organisms, cells and tissue cultures as well as small plants and small insects. The European Physiology Modules Facility (EPM) is the environment of a set of experiments that will be used to investigate the effects of long-duration space flight on the human body. Experiment results will contribute to an increased understanding of age-related bone loss, balance disorders and other ailments down on Earth.

