

IAF HUMAN SPACEFLIGHT SYMPOSIUM (B3)
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LIGHTWEIGHT SPACE SEAT AND SEATBELTS FOR CREW

Abstract

1.Introduction The new age of spaceship requires a new concept of cockpit that includes new dashboard controls, more space available for astronauts and new features for seats and seatbelts. All of the above studied to make comfortable the launch operations. New materials and processes are making possible a strong weight reduction, a better ergonomics and improved safety. The studies in Automotive and Motorsport can help to reach all these targets, and Sabelt has been partner of important companies and teams (i.e. Ferrari, McLaren and Porsche) for developing these solutions.

2.Solution Sabelt is the only company in the world that produce lightweight integrated seats and seatbelts, where the first target is to develop a seat with integrated seatbelts, independent from the primary structure and free to be moved inside the cockpit layout. The carbon fiber shell and the production processes make possible a huge weight reduction able to achieve the best comfort for astronauts, fully safe thanks to lumbar containment and head side protection.

3.Advantages The seat with integrated seatbelts makes possible a flexible layout of the cockpit in terms of configuration and capacity (i.e. aircraft or helicopters). The carbon fibre shell, the lightweight soft trimming and the high tenacity webbing materials used for the seatbelts allow for a significant weight reduction.

4.Potential A specific seating system, with or without vertical shock-absorber system, studied and customized for cockpit, derived from motorsport application, oriented at full respect of the major international standard, could generate a new product line for future space transportation.