

maxon motors fly again into outer space on board the "Dragon" spacecraft

The flawless launch of the SpaceX Falcon 9 rocket on May 22, 2012 is another successful step for maxon motor ag in the use of high precision motors in the astronautics industry. And the story continues: October 8, 2012 was the second successful launch of the Dragon capsule. The crucial tasks of the maxon motors in the SpaceX mission included orienting the solar arrays of the Dragon spacecraft towards the sun to provide the power supply.

The first private cargo capsule in the history of space travel was launched into space on May 22, 2012 from the Cape Canaveral Air Force Station in Florida. The voyage of the unmanned "Dragon" spacecraft, developed by the Californian company SpaceX, was a historical event for all involved. Never before has a private company developed a combined spacecraft and launch system that is capable of undertaking an orbital rendezvous and then returning to earth



Figure 1: For the power supply, the solar arrays of the Dragon capsule are oriented towards the sun by maxon motors. Foto: NASA

Brushless maxon motors for mission-critical tasks

EC maxon motors (Figure 4) were used on the voyage to the ISS to rotate the solar arrays (Figure 5) to keep them aligned with the sun as Dragon orbited the earth, open the instrument bay door (Figure 6) which contains navigation equipment, and lock in place the fixture that allows Dragon to be grappled by the space station's robotic arm (Figure 7).

On May 25, 2012, astronaut Donald Pettit successfully used the 17.6 meter robotic arm of the ISS to grapple the Dragon and guide it to the docking point on the space station. The 4.4 meter tall Dragon spacecraft supplied 520

kg (1146 pounds) of scientific equipment and food to the ISS. On May 31, the six ton capsule detached from the ISS and spashed down under parachutes in the Pacific Ocean off the coast of California on the same day. The capsule was returning 660 kg (1455 pounds) of material from the ISS. Now that NASA has phased out its space shuttle program, the Dragon is the only means of transporting such large quantities of material back to earth.

The maxon team has been working on the SpaceX motor project for the last year. This is a milestone in the history of maxon, and the story isn't over yet, as NASA has contracted with SpaceX for another twelve flights to the ISS. The first flight of it was successful launch on October 8, 2012 (SpaceX CRS-1). On board the Dragon spacecraft are materials to support investigations planned for the station's Expedition 33 crew, as well as crew supplies and space station hardware. In a few years, the spacecraft will carry seven astronauts to the international space station.

For maxon motor, this latest flight is a major step forwards in the future of commercial aerospace applications. With the Mars rovers Opportunity and Spirit, maxon motor has previously demonstrated that maxon motors function flawlessly, even in outer space and on other planets. "We recognized the significance of what SpaceX were trying to achieve when they first approached us for motors several years ago.

Our participation demonstrates that our standard industrial motors now have the technological sophistication that enables them to function in the critical roles needed for the success of this ground breaking mission," explained Robin Phillips and Kornelia Stubicar, the two managers of the SpaceX motor project at maxon who, together with their team, implemented the development of the Dragon motors.

Update from October 8, 2012.

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Figure 2: The Swiss maxon SpaceX team: (from left to right) Gabriele Schollwöck, Michael Kempf, Hubert Müller, Rainer Seiler, Urs Imfeld, Oezgen Cenk, Jörg Meier, Kornelia Stubicar, Robin Phillips, Ernst Rohrer, Josef Bucher, Roland Flüeler, Gjilijmsere Abdulai, Dominik Omlin, Toni Kronenberg.

Not pictured: Rolf Fergg, Martin Büchi, Hans Tresch, Cornelia Wenger, Jeff Randall (mpm/USA); © 2012 maxon motor ag



Figure 3: View from the International Space Station of the SpaceX Dragon spacecraft as the station's robotic arm moves Dragon into place for attachment to the station. May 25, 2012. Photo: NASA



Figure 4: The brushless EC maxon motor for the mission-critical tasks in the Dragon spacecraft © 2012 maxon motor ag



Video of the Falcon 9 launch.

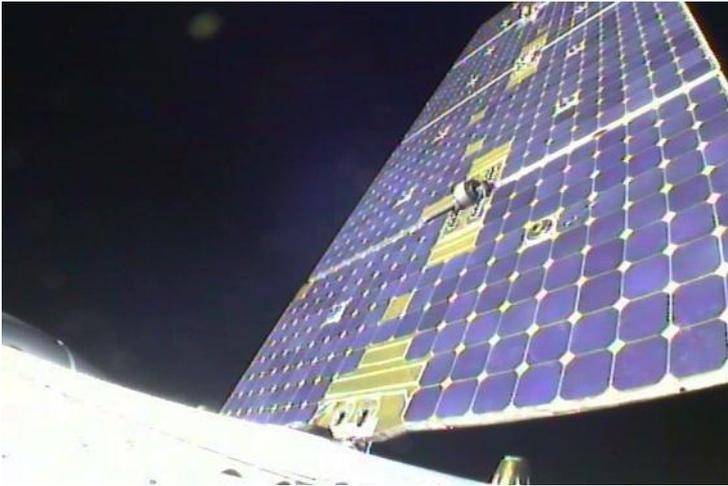


Figure 5: View from the Dragon spacecraft as it orbits the Earth. This picture shows one of the two solar arrays that powers the Dragon spacecraft. Photo: SpaceX



Figure 6: In the middle of the Dragon spacecraft you can see the mechanism for opening the instrument bay which was also controlled using maxon motors. Photo: SpaceX



Figure 7: This close up of the Dragon spacecraft provides a good view of the fixture", which was locked in place using maxon motors. Photo: NASA