

SPACE TRANSPORTATION SOLUTIONS AND INNOVATIONS SYMPOSIUM (D2)
Launch Services, Missions, Operations and Facilities (2)

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ROCKOT - THE AFFORDABLE LAUNCHER FOR SMALL SATELLITE CONSTELLATIONS

Abstract

In recent years a number of small satellite constellations has been put into orbit both for institutional as well as commercial operators and the trend continues. Eurockot has contributed to this development with its multiple launch capability. In the past, Eurockot has launched / integrated several double and multiple launches (Grace with 2 spacecraft per launch, Iridium - 2 spacecraft, Multi-Orbit-Mission (MOM) - 8 spacecraft, SMOS and PROBA-2). The Eurockot capability of multiple launches covers the heritage and skills for mission specific, intelligent multiple launch dispensers as well as mission profiles with several re-ignitions of the upper stage for orbit changes or phasing maneuvers. Eurockot offers launches of complete orbital planes to constellation operators or combinations of 2 to 3 individual spacecraft.

Eurockot is now looking forward to launching the next multiple mission in 2013 - the three spacecraft of the ESA's Swarm mission. It will be one of the most complex missions in respect of accommodation and simultaneous separation of the three satellites. To ensure an impact free separation of all three satellites and to minimize the risk of a collision with the upper stage a special adapter/dispenser system was developed by Khrunichev Space Center. The interface between the spacecraft and dispenser will be realized using point attachment systems with mechanical locks. The Swarm satellites will be placed by Rockot in a near polar orbit of 490 km altitude and about 87 inclination from the dedicated Rockot launch facilities at the Plesetsk Cosmodrome in Northern Russia. Swarm will provide a study of the geomagnetic field and its temporal evolution unprecedented in its accuracy and completeness, and will help to improve our knowledge of the Earth's interior and climate.

In the paper, Eurockot will demonstrate its heritage of multiple and double missions describing particularly the future Swarm mission. Besides this, Eurockot will show a variety of solutions especially for commercial customers to launch their spacecraft at a reasonable price.