Paper ID: 42939
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IAF SPACE PROPULSION SYMPOSIUM (C4)
Electric Propulsion (4)

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FUTURE ELECTRIC PROPULSION NEEDS DEDUCED FROM LAUNCHER AND MISSION CONSTRAINTS

Abstract

OHB system has a need for high performance electric propulsion technologies to compete on the satellite market. These technologies are required for an increasing number of tasks like orbit raising of telecom or navigational satellites, station keeping on telecom satellites, setup of constellations, multiple use space tugs or even interplanetary transport vehicles.In the frame of the Horizon 2020 program several missions and needs were defined. In this paper, these needs are compared to available and future electric propulsion technologies taking also into account the flexibility of launcher injections and current market development.

The variety of different missions requires a flexible power, thrust and specific impulse set-point to achieve the optimum for each mission. Accordingly, the qualification of potential thrusters needs to cover these operation points. To prevent repeating the lifetime qualification for each operating point, new means of verifying the lifetime of the thruster by analysis and similarity tests needs to be developed. This paper discusses the requirements for these new methods.