

August 4, 2020

Patent Issued for Low-Power Consumption Monopropellant Cascade Engine

The U.S. Patent Office has issued P3 Technologies' personnel a patent for their Cascade Engine. The Cascade Engine is a monopropellant, pressure-fed engine that utilizes low power consumption (less than 5 Watts) regardless of thrust class. The engine is scalable from 0.01 – 1,000+ lbs thrust, enabling its use as an igniter, thruster, or main engine.

Propellant injection is staggered in order to utilize the exothermic decomposition energy from the previous stage to ignite the subsequent stage. Only the initial stage requires power, which enables the extremely low power consumption regardless of thrust. Additional stages are added to achieve the desired thrust class. By staggering the injector arrays in stages, the combustor continuously decomposes the propellant without flooding the chamber or stalling the engine.

Although initially developed for nitrous oxide, the engine operates with most monopropellants.

