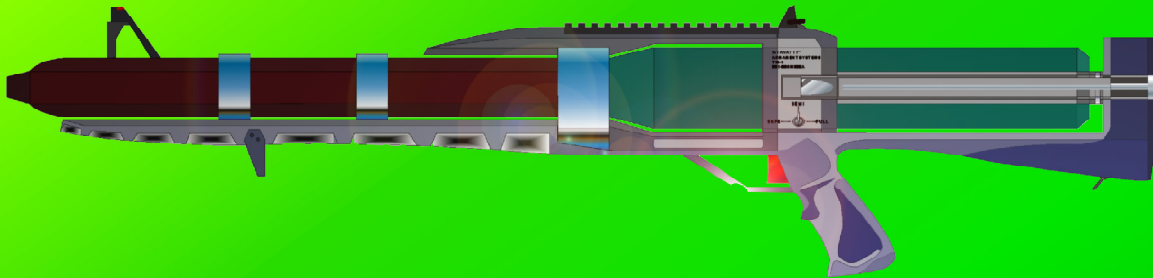


SF-1

TACTICAL GASDYNAMIC LASER RIFLE



STAVATTI's SF-1 is a Tactical Gasdynamic Laser Rifle for the Individual Warfighter. A TIS-1 derivative, the SF-1 will deliver a lethal beam of 10.6 micrometer wavelength laser light over a 0.3 second per shot duration. The SF-1's per shot net energy output-to-target is approximately 2 kW. The SF-1 is designed to fire in semi-automatic or fully automatic mode delivering over 150 bursts per minute. Effective range exceeds 1,800 meters. Recoil force at rifle shoulder rest is approximately 11.25 lbs/sq in.

A directed beam energy weapon, the SF-1 generates a lethal laser beam through the thermal pumping of a mixture of Carbon Dioxide, Nitrogen and Helium gases. Initially contained at a state of high temperature/high pressure thermal equilibrium within a gas reservoir, every pull of the SF-1 trigger results in the acceleration of the gas mixture through an annulus to achieve local sonic flow. The high speed gas mixture then enters a supersonic expansion nozzle, which significantly reduces both the pressure and temperature of the gas, while further accelerating the flow to a hypersonic (MACH 6) velocity. A resulting rapid expansion occurs within the relaxation time of the upper and lower vibrational energy states of the gas mixture, inducing the vibrational freezing of the gas molecules and the subsequent generation of a high energy laser beam within a 20 inch resonance chamber. Focused with primary and secondary mirrors within the resonance chamber, the entire laser process is fueled by a proprietary sealed power cell.

The SF-1's STAVATTI proprietary sealed power cell has sufficient energy for a 90 day operational life before replacement. Constructed from Titanium, Inconel, Stainless Steel and featuring an Aluminum Alloy frame with polymer grip, the SF-1 is a gas cooled laser weapon with an integral catalytic converter to eliminate the need for laser medium replenishment. Featuring an integral Picatinny Rail for the accommodation of a wide variety of scopes, the SF-1 may be equipped with grenade launchers and bayonets. A fully integrated weapon system, the SF-1 frame incorporates a built-in GPS/Moving Map Navigation System, Secure Encrypted SATCOM Communication Transceiver and Warfighter Individual Health Monitoring System (WIHMS), all powered by the sealed power cell.

Developed as a privately financed, commercial undertaking by STAVATTI-ARMAMENT SYSTEMS DIVISION, SF-1 Low Rate Initial Production (LRIP) articles will be marketed via Direct Commercial Sales (DCS) to qualified NATO/ALLIED armed forces at a per unit price of \$2.6 million by 2006. By 2018, STAVATTI anticipates increased production of the proprietary sealed power cell, reducing mass produced per unit weapon price to the \$15,000 class.

SPECIFICATIONS

Caliber (Lethal Beam Diameter): 1.3 mm
Trigger: Two Stage Electronic National Match
Length: 43 inches
Barrel (Resonance Chamber): 20 inches
Operating Weight: 13 lbs
Accuracy: 0.5"-1" Groups at 1,500 Yards
Maximum Rate of Fire: >150 BPM
Power Cell Lifetime: >90 Days

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