

Iron Beam

Iron Beam (Hebrew: קֶרֶן בַּרְזֵל, *keren barzel*) is an air defense system which as of 2016 is in post-production development and upgrades by Israeli defense contractor Rafael Advanced Defense Systems^[1] Unveiled at the 2014 Singapore Air Show on February 11^[2] and expected to enter service with the Israel Defense Forces in 2015, the system is designed to destroy short-range rockets, artillery, and mortars with a range of up to 7 km (4.3 mi), too small for the Iron Dome system to intercept effectively.^[1] In addition, the system could also intercept unmanned aerial vehicles.^[3] Iron Beam will use a "directed high energy laser beam" to destroy hostile targets with ranges of up to 7 kilometres (4.3 mi).^{[1][4]} Iron Beam will constitute the fifth element of Israel's integrated air defense system,^[1] in addition to Arrow 2, Arrow 3, David's Sling and Iron Dome.^[5] However, Iron Beam is also a stand-alone system.^[3]

Iron Beam uses a fiber laser to destroy an airborne target within 4–5 seconds of firing. Whether acting as a stand-alone system or with external cueing as part of an air-defense system, a threat is detected by a surveillance system and tracked by vehicle platforms in order to engage. The main benefits of using a directed energy weapon over conventional missile interceptors are lower costs per shot, an unlimited magazine, lower operational costs, and less manpower. Though the system may not cost less than missiles, operating it has lower life-cycle costs. Limited details that have been released. As of February 2014, the system had successfully targeted mortar and artillery shells in over 100 tests and engaged and destroyed small UAVs. Current power levels are at "tens of kilowatts" and planned to be increased to hundreds of kW. Iron Beam has so far been funded mainly by the Israeli Ministry of Defense, and Rafael is awaiting a decision on whether they will choose to operate the system. Rafael is also pursuing increasing the range of the system and partnering with other companies to further develop the prototype. If sufficiently funded, the Iron Beam could be operational in two to three years.^[6]

The Israeli Defense Forces deployed Iron Beam in 2016 as the world's first laser air-defense system.^[7] The system has been in development for five years and is produced by Rafael, funded by the MoD, and extensively underwritten by the United States. An Iron Beam battery is mobile and composed of an air defense radar command and control (C2) unit, and two HEL systems.^[8]

See also

- Laser Weapon System

References

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Iron Beam	
Type	Laser air defense system
Place of origin	Israel
Service history	
In service	Unknown
Used by	Israel
Production history	
Designer	Rafael Advanced Defense Systems
Designed	2014

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