



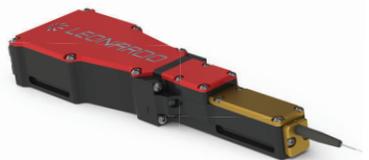
Directed Energy Applications

Fiber, solid-state and diode-pumped alkali lasers (DPAL) are being researched and prototyped by defense partners for suitability on the battlefield. All of these lasers have one thing in common: they are pumped with semiconductor laser diodes. It all starts here, with the primary building block for all laser-based directed energy systems.

As the world's largest supplier of pump sources for directed energy lasers, Leonardo is at the forefront of developing the latest technologies that enable these systems to be widely deployable to the battlefield. Our laser diodes and diode systems are engineered for any type of laser design and are scalable from kilowatts to millions of watts of optical output power.

PUMP SOURCES FOR FIBER, SOLID-STATE AND DPAL SYSTEMS

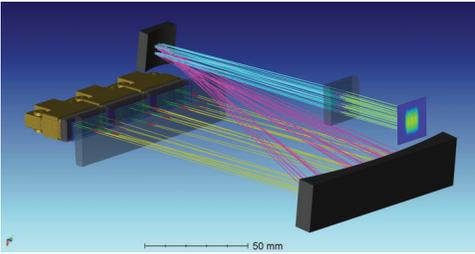
Leonardo is a US-based maker of all critical components in the laser pump source as a fully integrated manufacturer. This eases the challenges of customizing the design's aspects for optimal performance and minimizing size, weight and power (SWaP). Leonardo provides complete system integration, testing and qualification of diode components with micro-optics, beam shaping and beam conditioning optics, power supply and drive control electronics.



Fiber-Coupled Laser Diode (FB)

OUR DESIGN APPROACH - BEAM SHAPED SYSTEMS

It takes more than just premium diode components to efficiently pump a laser. When designing a pump source, we start by understanding all of the requirements at the target. Energy, spot size, uniformity, spectral width, wavelength and homogeneity are just some of the parameters of concern. We then work backward to the laser diode source, modeling laser diode bars and optics to produce the customized result desired. This is the key to optimizing critical performance parameters at the component level rather than the system level.



System-level optical modeling with advanced beam shaping and conditioning.

SUPPORT SYSTEMS

In addition to manufacturing the diodes and optical systems, Leonardo can design and manufacture the support systems needed to operate the laser, including power electronics, controllers and cooling systems.

OPERATING IN HARSH CONDITIONS

Man-portable, vehicle, rotary wing, unmanned aerial vehicle and space environments are all places we've been before. Our products are specifically tailored to operate with the cooling and power systems available on these platforms. Our products are engineered for the reliability needed in these harsh operating conditions and meet MIL specifications for all applications.

ABOUT US

Leonardo Electronics US enables next-gen technologies in defense, security, medical, automotive and industrial segments. For over 20 years, the Tucson, AZ based facility has driven robust laser design and innovation resulting in enabling technology to support market leaders worldwide.

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Patent Numbers:

US 7,660,335 | US 7,864,825
US 6,352,873 | US 6,295,307

Certifications:

AS9100D including ISO 9001:2015
ISO 13485:2016 Medical
IATF 16949:2016 Automotive
ISO14001:2016 Environmental Management System

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