

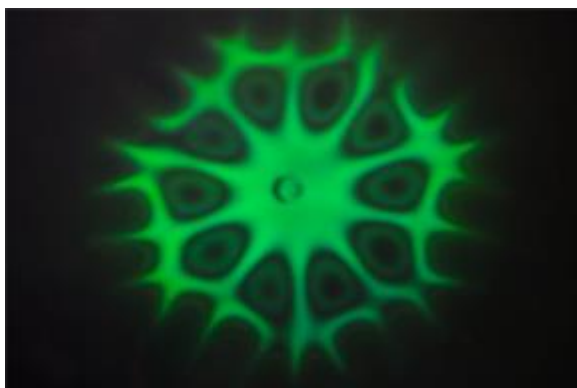
DIFFRACTIVE OPTICAL ELEMENTS

Laser Optical Engineering Ltd (LOE) has spent over 15 years making Diffractive Optical Elements (DOEs) for a variety of laser sources. Capable of reshaping the output beam of a laser from a conventional Gaussian or top hat profile to almost any shape desired DOEs bring efficiency benefits to many laser processing applications as well as allowing the creation of complex laser displays and illuminations without the need for moving parts and control systems. DOEs are often referred to as Holographic Optical Elements (HOEs). Both names are widely used as the incident beam is transformed by a hologram; the hologram is made up of an array of apertures that diffract the light. LOE uses our own design algorithms as well as commercial software packages to produce the kinoform designs for our DOEs. Kinoform holograms offer maximum performance whilst enabling practical design and manufacturing solutions to be achieved.



LOE has produced reflective DOEs for CO₂ lasers for a number of applications from beam splitting to complex heat profiles for welding applications. Available with a custom mounting box; these optics are very durable and have been industrially proven over many years.

Transmissive DOEs for more modern 1 μ m laser sources are a more recent addition to our portfolio, having been in development for 10 years and in production for almost 5 years. Fabricated in fused silica to fit most standard lens holders these make a compact and flexible optical set up. These optics can be used with single mode and multi-mode lasers.



In addition to these standard optics LOE has produced DOEs for custom wavelengths for specific applications. These include reflective beam splitters producing a total of 81 individual spots for a 3 μ m source and pattern generating DOEs for a UV laser. These and other wavelengths can often be accommodated due to our flexible and highly controllable manufacturing techniques.

Please contact us with your specific requirements and we will be pleased to prepare a proposal appropriate to your intended application.