

High Power Density Focusing Optics

As the demand for finer detailed engraving and cutting increases, Universal Laser Systems has developed the High Power Density Focusing Optics (HPDFO) option.

What does it do?

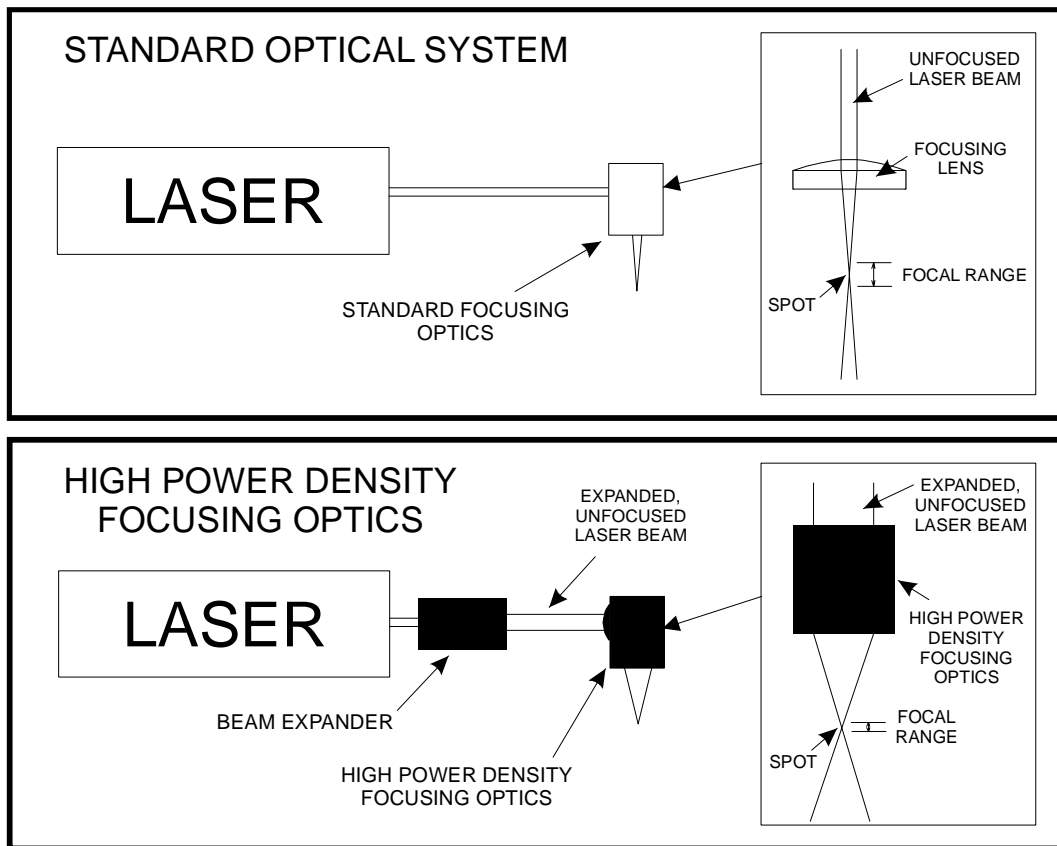
It produces a smaller, focused laser beam “spot” than a standard laser beam delivery, optical system. Depending on the type of material being processed, and the desired effect, the effective spot size produced by this option can be as small as 1/4th the size of the spot produced by a standard 2.0 inch focusing lens.

What are its applications?

With a smaller spot size (higher power density), and depending on your application material, you can engrave smaller text, produce higher resolution graphics and photographs, vector mark and cut thinner lines, and cut deeper with the same laser power. It is even possible to scribe and/or etch some uncoated metals, such as stainless steel, directly without the assistance of chemicals or coatings.

How does it work?

The HPDFO consists of two parts, the Beam Expander assembly, which is mounted in place of the Beam Window, and the High Resolution Optics assembly, which replaces the Focus Lens assembly. Through specialized optics, the HPDFO expands the diameter of the laser beam and concentrates that expanded energy at the focus point to produce a smaller focused spot that has a much higher power density.



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What are its limitations?

- It is not compatible with beam splitting, such as the Dual Head option or Dual Beam systems such as the X2-Superspeed.
- It has a limited focal range of +/- .025 inches (+/- .625 mm) which restricts its usage to very flat materials.

Is it dangerous to use?

Due to the benefit of having a higher power density, you may be eager to try experimenting with different materials that, in the past, you were incapable of processing. Be aware that there is an increased risk of mechanical and optical component damage from the byproducts of deeper engraving and cutting such as higher quantities of smoke, higher potential for flame-ups, or beam reflection damage from marking uncoated metals.

What new platforms is it compatible with?

It is available as a factory installed option for the following new platforms:

- M-360
- V-460
- X-660
- X2-660

****Not compatible in Dual Head mode on any of the abovementioned platforms****

Can current production models, already in the field, be retrofitted? How about older models not currently being manufactured?

Yes, compatible models can be retrofit in the field. Keep in mind that the setup procedure may take anywhere from 15 minutes to 1.5 hours to complete.

Field retrofit kits will be available for the following models:

- M30, M35, M40
- M Class (25/30/35/40/45/50W)
- M-300 (All)
- V Class (25/30/35/40/45/50W)
- V-400 (All)
- X30, X35, X40, X45
- X Class (25/30/35/40/45/50W)
- X-600 (All)
- X2-600 (All)

***** ALL OTHER MODELS ARE NOT COMPATIBLE *****

Why isn't the HPDFO compatible with the SuperSpeed?

The SuperSpeed utilizes a unique and patented beam delivery system. To produce the "dual raster line" effect, the SuperSpeed projects two, independently controlled laser beams at slightly different angles. The optics in the HPDFO interfere with the optics used to create these angles in the SuperSpeed.

Can I remove the HPDFO and install the standard optics kit in case I have an application that requires standard optics?

Yes you can, however, it is only necessary to remove the high resolution optics assembly and replace it with the standard #3 Mirror and Focus Lens assembly. It's as easy as changing to a different Focus Lens assembly. It is not necessary or advisable to remove the Beam Expander assembly.