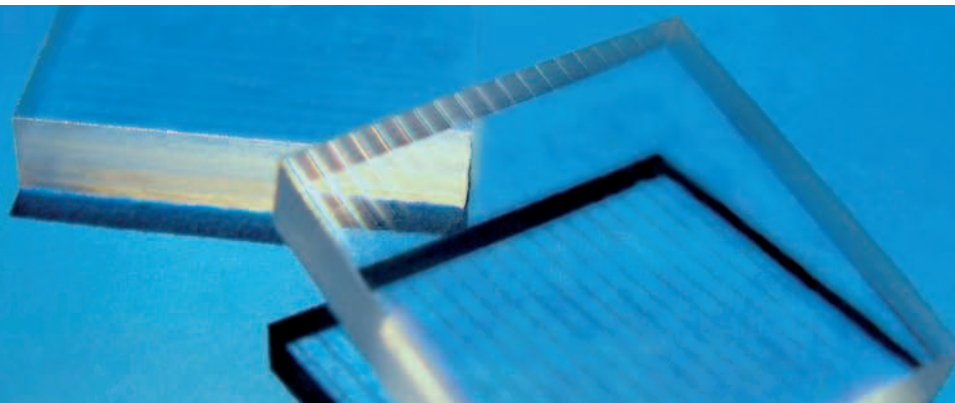




## UV Beam Shaping with $\text{CaF}_2$ – Microlens Arrays



Laser beam homogeneity of UV lasers is a challenge. For a large range of applications a smooth beam profile of an arbitrary input intensity distribution at a high power density is required.

In particular for UV-lasers such as Excimer lasers and diode pumped frequency tripled lasers with their unique ability to deliver high pulse energies, Microlens Arrays of  $\text{CaF}_2$  are suitable optics to produce homogenous intensity distributions with a long durability which is especially needed in industrial applications.

Jenoptik  $\text{CaF}_2$  – Microlens Arrays can reshape nearly every input intensity distribution into well-defined, reproducible and custom top hat far-field profiles with a high efficiency over a long lifetime.

#### Features:

- Excellent Deep UV Transmission
- Higher damage threshold in the DUV compared to quartz
- Custom design
- High efficiency
- Steep slopes of top hat profile
- Low modulation
- Insensitive to input beam shape

#### Applications:

- Illumination systems for Semiconductor Industry
- Ophthalmology
- Laser materials processing
- Printing technology
- Measuring systems

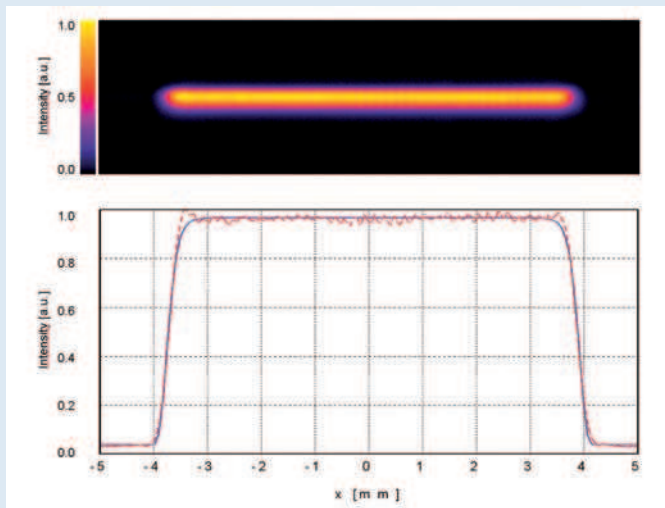
# UV Beam Shaping with CaF<sub>2</sub> – Microlens Arrays

## Specifications

Uniformity:	< 7 %
Efficiency:	> 92 % *
Max. lens sag:	2 μm
Clear aperture:	5 mm to 120 mm
Laser wavelengths:	> 157 nm
Material:	CaF <sub>2</sub>
AR-Coating:	optional laser resistant coatings
Product number:	029143

\* with AR-Coating

Typical result for a homogenization with CaF<sub>2</sub> Microlens Arrays @ 193 nm



### Setup

Imaging tandem Microlens Array assembly

Input Laser beam size (1/e<sup>2</sup>): 3 mm x 6 mm

Laser divergence: 2 x 1 mrad

CaF<sub>2</sub> Microlens Arrays

Lens pitch: 0.5 mm

Focal length: 30 mm

### Results

Uniformity: < 6.3 %

Efficiency: > 92.2 %

Output Laser beam size (1/e<sup>2</sup>): 0.54 mm x 7.8 mm

It is our policy to constantly improve the design and specifications. Accordingly, the details represented herein cannot be regarded as final and binding.



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