

Compact Beam Shaper

IOS000336 - TopHat of 2.0 x 2.0 mm²



Features and Advantages

This compact beam shaper is designed for a fiber coupled diode laser to generate a homogeneous field of 2 x 2 mm² in a working distance of approximately 100 mm.

Product Specifications

Specification Data of the Laser Source (input)	Unit	Value
Wavelength	nm	790-990
Power	W	≤ 120
Fiber core diameter	µm	400
NA		0.22
Fiber connector		SMA905

Specification Data of the Beam Shaper Module ⁽¹⁾	Unit	Value
Transmission	%	> 95
Efficiency ($I_{\text{field,hom}} / I_{\text{field,total}}$) ⁽²⁾	%	> 60
Generated field size	mm ²	2 x 2 ± 0.5 (top hat region)
Inhomogeneity $(I_{\text{max}} - I_{\text{min}}) / (I_{\text{max}} + I_{\text{min}})$ ⁽³⁾	%	≤ 7.5 (integrated over the other axis)
Working distance WD ⁽⁴⁾	mm	95 ± 5
Housing material		anodized aluminium
Dimensions of the housing	mm	see drawing

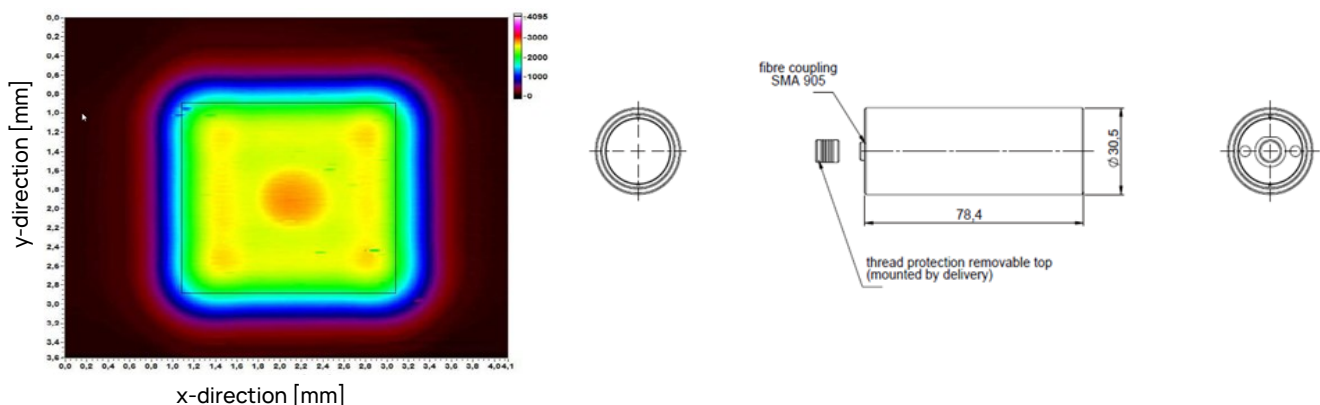
(1) Example for customization – customized field sizes and coatings on request

(2) $I_{\text{field,hom}} / I_{\text{field,total}}$ denotes the ratio of the integrated power in the homogeneous field versus the total power at the field plane

(3) I_{max} and I_{min} denote the maximum and minimum intensity in the uniform field, respectively.

(4) Between last mechanical surface and focus

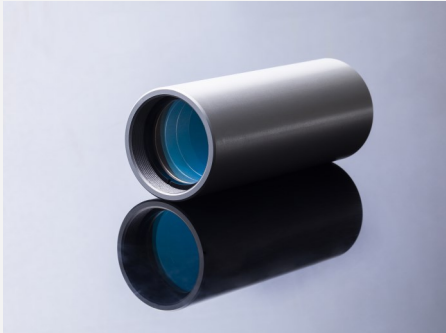
Typical Measured Field and Product Drawing (mm)



Rev 03 | Updated June 8, 2022 | RoHS compliant 2011/65/EU and 2015/863/EU

Compact Beam Shaper

IOS000316 - TopHat of 6.0 x 6.0 mm²



Features and Advantages

This compact beam shaper is designed for a fiber coupled diode laser to generate a homogeneous field of 6 x 6 mm² in a working distance of approximately 150 mm.

Product Specifications

Specification Data of the Laser Source (input)	Unit	Value
Wavelength	nm	790-990
Power	W	≤ 120
Fiber core diameter	μm	400
NA		0.22
Fiber connector		SMA905

Specification Data of the Beam Shaper Module ⁽¹⁾	Unit	Value
Transmission	%	> 95
Efficiency ($I_{\text{field,hom}} / I_{\text{field,total}}$) ⁽²⁾	%	> 60
Generated field size	mm ²	6 x 6 ± 0.5 (top hat region)
Inhomogeneity ($(I_{\text{max}} - I_{\text{min}}) / (I_{\text{max}} + I_{\text{min}})$) ⁽³⁾	%	≤ 7.5 (integrated over the other axis)
Working distance WD ⁽⁴⁾	mm	150 ± 10
Housing material		anodized aluminium
Dimensions of the housing	mm	see drawing

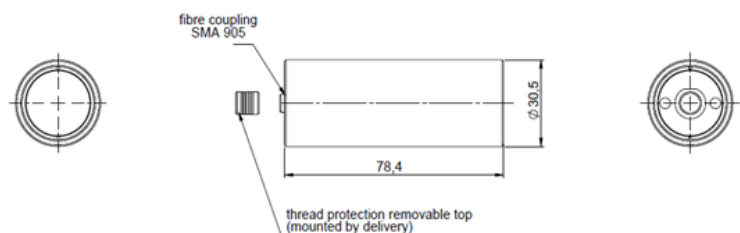
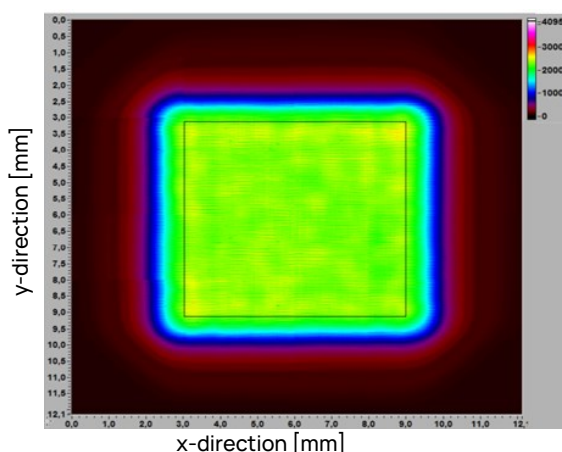
(1) Example for customization – customized field sizes and coatings on request

(2) $I_{\text{field,hom}} / I_{\text{field,total}}$ denotes the ratio of the integrated power in the homogeneous field versus the total power at the field plane

(3) I_{max} and I_{min} denote the maximum and minimum intensity in the uniform field, respectively.

(4) Between last mechanical surface and focus

Typical Measured Field and Product Drawing (mm)



Rev 03 | Updated June 8, 2022 | RoHS compliant 2011/65/EU and 2015/863/EU

Compact Beam Shaper

IOS000324 - TopHat of 10.5 x 10.5 mm²



Features and Advantages

This compact beam shaper is designed for a fiber coupled diode laser to generate a homogeneous field of 10.5 x 10.5 mm² in a working distance of approximately 300 mm.

Product Specifications

Specification Data of the Laser Source (input)	Unit	Value
Wavelength	nm	790-990
Power	W	≤ 120
Fiber core diameter	µm	400
NA		0.22
Fiber connector		SMA905

Specification Data of the Beam Shaper Module ⁽¹⁾	Unit	Value
Transmission	%	> 95
Efficiency ($I_{\text{field,hom}} / I_{\text{field,total}}$) ⁽²⁾	%	> 60
Generated field size	mm ²	10.5 x 10.5 ± 1 (top hat region)
Inhomogeneity ($(I_{\text{max}} - I_{\text{min}}) / (I_{\text{max}} + I_{\text{min}})$) ⁽³⁾	%	≤ 7.5 (integrated over the other axis)
Working distance WD ⁽⁴⁾	mm	300 ± 10
Housing material		anodized aluminium
Dimensions of the housing	mm	see drawing

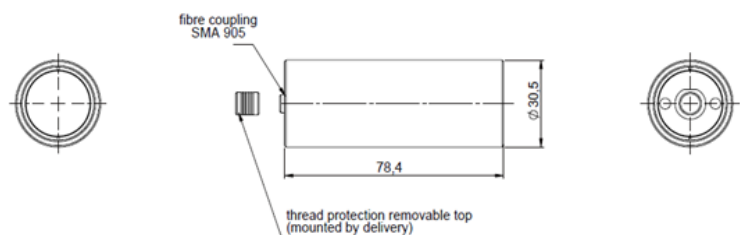
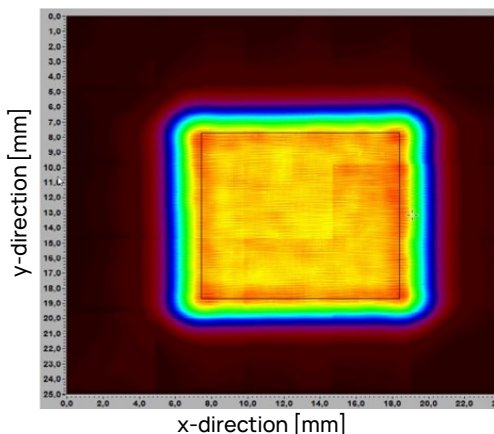
(1) Example for customization – customized field sizes and coatings on request

(2) $I_{\text{field,hom}} / I_{\text{field,total}}$ denotes the ratio of the integrated power in the homogeneous field versus the total power at the field plane

(3) I_{max} and I_{min} denote the maximum and minimum intensity in the uniform field, respectively.

(4) Between last mechanical surface and focus

Typical Measured Field and Product Drawing (mm)



Rev 03 | Updated June 8, 2022 | RoHS compliant 2011/65/EU and 2015/863/EU

Compact Beam Shaper

IOS000306 - TopHat of 41.0 x 1.6 mm²



Features and Advantages

This compact beam shaper is designed for a fiber coupled diode laser to generate a homogeneous field of 41.0 x 1.6 mm² in a working distance of approximately 200 mm.

Product Specifications

Specification Data of the Laser Source (input)	Unit	Value
Wavelength	nm	790-990
Power	W	≤ 120
Fiber core diameter	μm	400
NA		0.22
Fiber connector		SMA905

Specification Data of the Beam Shaper Module ⁽¹⁾	Unit	Value
Transmission	%	> 95
Efficiency ($I_{\text{field,hom}} / I_{\text{field,total}}$) ⁽²⁾	%	> 60
Generated field size	mm ²	41 ± 2 (top hat region) 1.6 ± 0.2 (gaussian like, FWHM)
Inhomogeneity ($(I_{\text{max}} - I_{\text{min}}) / (I_{\text{max}} + I_{\text{min}})$) ⁽³⁾	%	≤ 7.5 (integrated over the other axis)
Working distance WD ⁽⁴⁾	mm	200 ± 15
Housing material		anodized aluminium
Dimensions of the housing	mm	see drawing

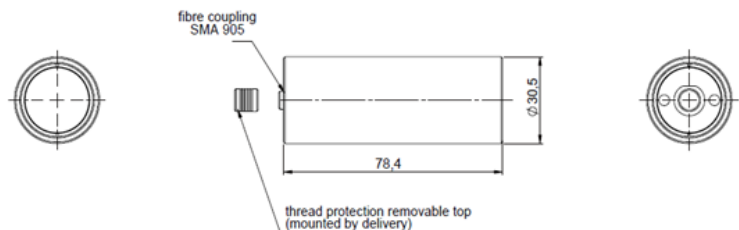
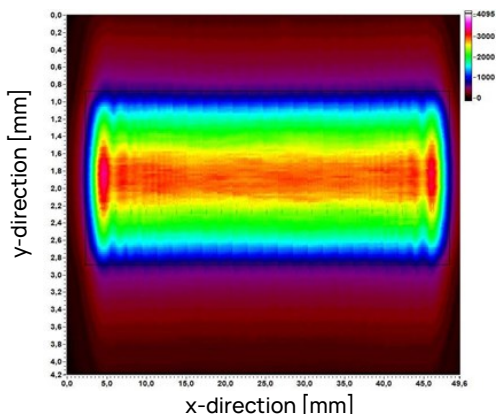
(1) Example for customization – customized field sizes and coatings on request

(2) $I_{\text{field,hom}} / I_{\text{field,total}}$ denotes the ratio of the integrated power in the homogeneous line versus the total power at the field plane

(3) I_{max} and I_{min} denote the maximum and minimum intensity in the uniform field, respectively.

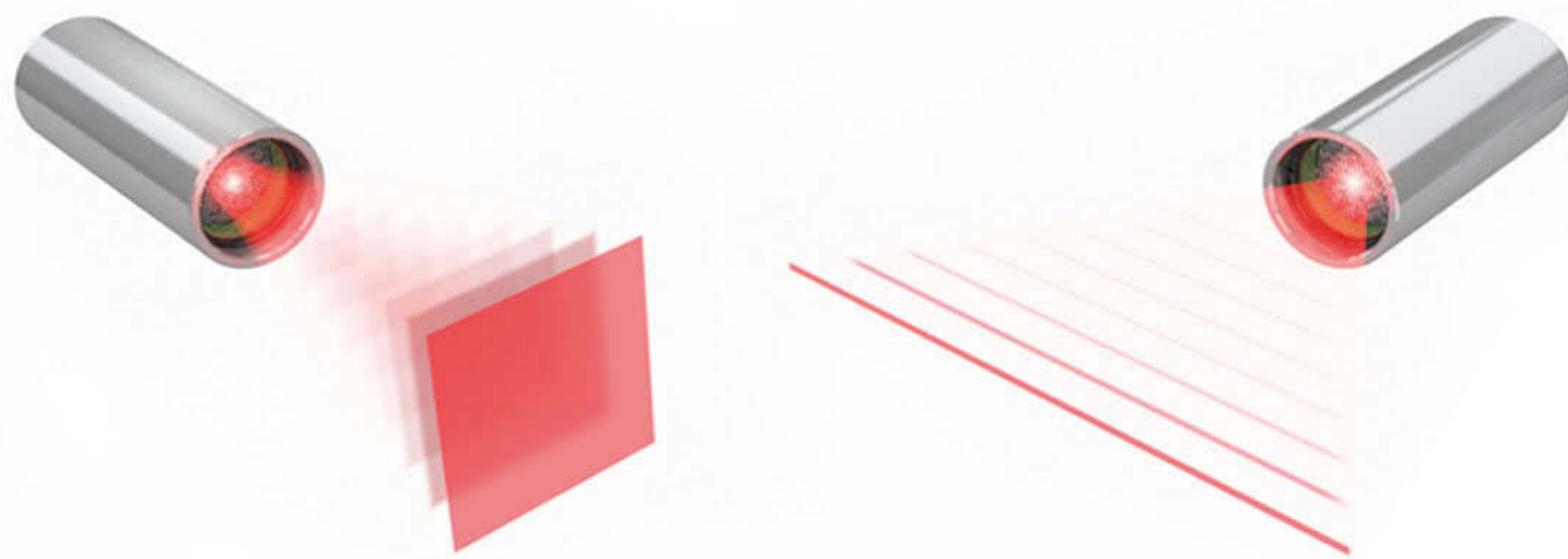
(4) Between last mechanical surface and focus

Typical Measured Field and Product Drawing (mm)

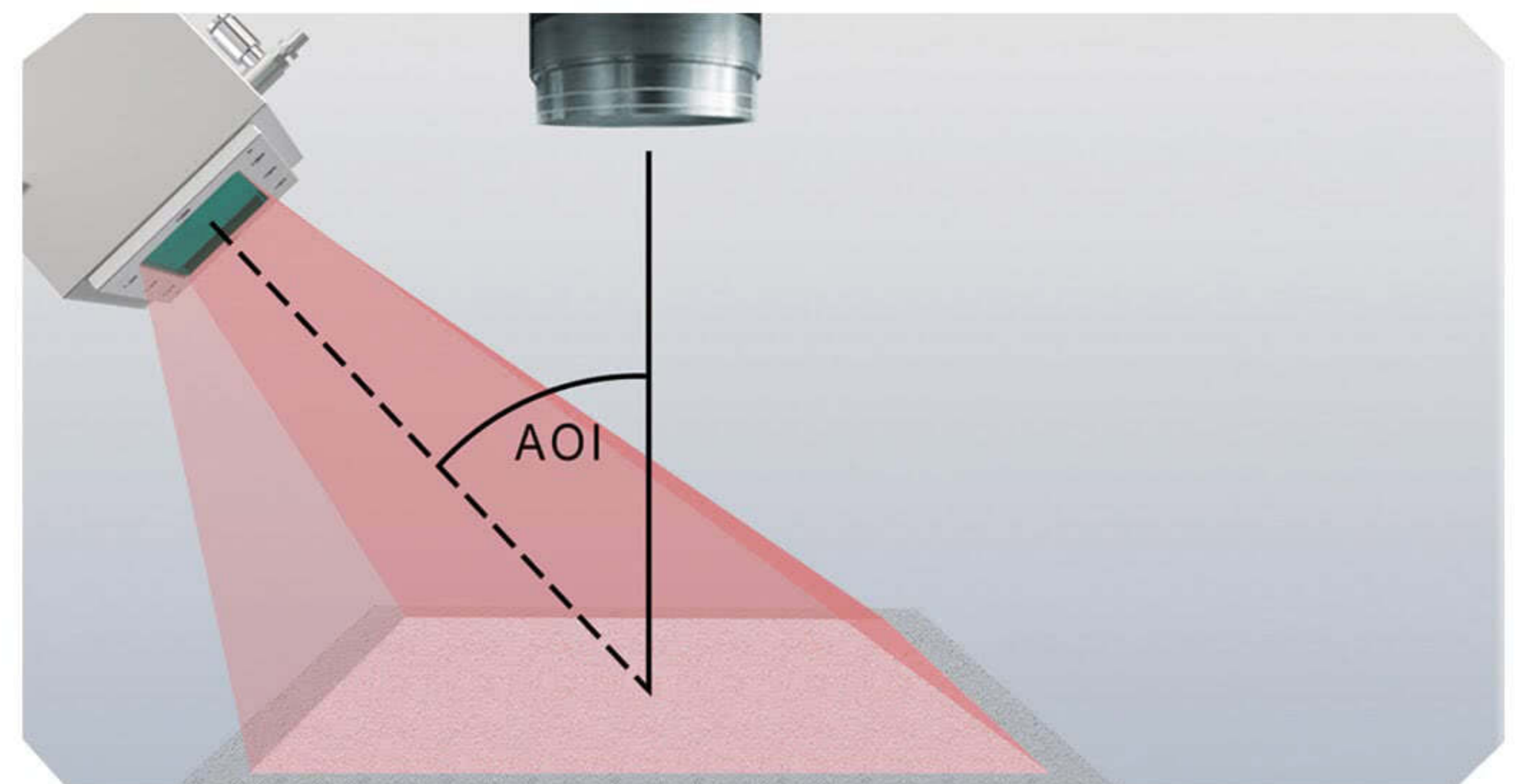


Rev 03 | Updated June 8, 2022 | RoHS compliant 2011/65/EU and 2015/863/EU

HIGH PRECISION LASER BEAM SHAPING



Compact Beam Shaper



Off-Axis Beam Shaper

ADVANCED MATERIAL PROCESSING

- Plastic Welding
- Thin metal film pattern ablation
- Amorphous silicon crystallization
- Tempering

MACHINE VISION

- Quality assurance by photoluminescence

EVERY PHOTON - IN THE RIGHT PLACE, AT THE RIGHT TIME.

Is there a way to control and individually shape laser light so that it can be used as a tool?

YES! With refractive micro-optics and beam shaping solutions.

Focuslight is able to expand the potential of light, allowing it to be harnessed technically and cost-efficiently for individual applications in both industry and research.

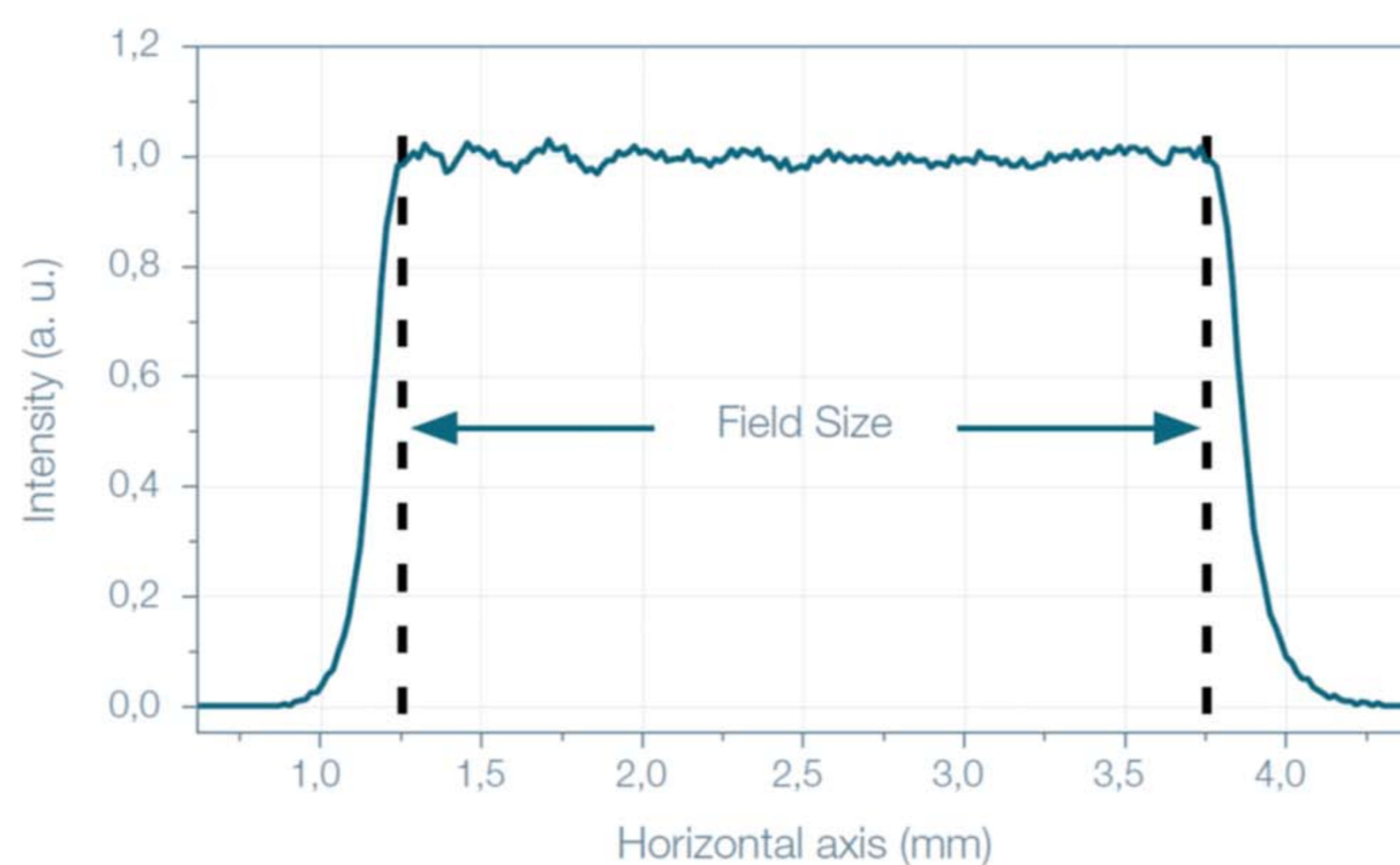
Rectangular, Square and Lines – the Focuslight's beam shaping units can produce many different beam shapes - making it extremely versatile in use. This allows a scaling of the productivity by using the laser in a more efficient way. The beam shaping units are suitable for many different laser sources (from deep UV to IR).

HIGH PRECISION LASER BEAM SHAPING

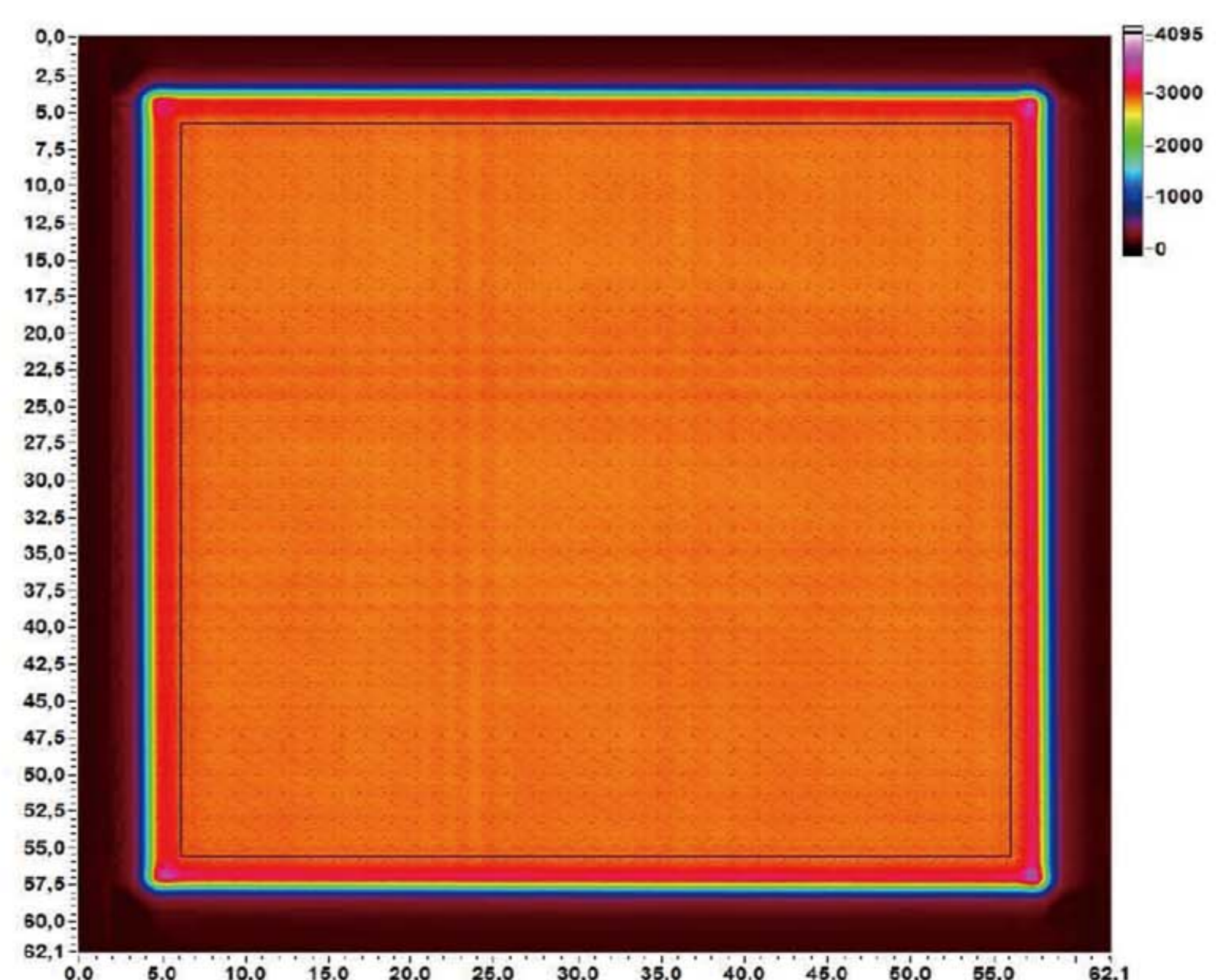
Benefits of Scalable Beam Shaping Modules for High-Power Applications

- Pre-aligned and ready for use in industrial environment
 - Wide range of field geometries
 - Application-specific homogeneity up to the technical limits
 - Optical efficiency up to 90 %
 - Manufactured from high-quality materials, e.g. fused silica, CaF2
 - Suitable for many different laser sources → excimer laser, solid-state laser, diode laser
- The beam shaping modules combine the advantages of highest optical performance with simple handling and easy integration in production environment.

TYPICAL BEAM PROFILE



Intensity cross-section



Typical intensity profile

COMPANY INTRODUCTION

Founded in 2007 and headquartered in Xi'an, China, Focuslight Technologies Inc. is a fast-growing company that develops and manufactures high-power diode laser components and materials (photon generation), laser optics (photon control) as well as photonic application modules, assemblies, and sub-systems (photonics application solutions) with a focus on automotive, pan-semiconductor, and medical & health application solutions. Focuslight has over 400 patents worldwide and is ISO 14001, ISO 45001, ISO 9001:2015, and IATF 16949 certified. In December 2021, Focuslight announced the IPO on the Shanghai Stock Exchange (Ticker Symbol: 688167).