

# $\pi$ Shaper 4.5\_4.5

**TELESCOPE or COLLIMATOR Homogenizers**  
**Converting Gaussian to Flattop profile**  
**Lasers of Visual and Near-IR spectrum**



With these unique tools it is possible to convert a single mode or multimode laser beam of similar to Gaussian intensity profile into a collimated Flattop beam with nearly 100% efficiency.

**TELESCOPIC** and **COLLIMATING** versions of  $\pi$ Shaper are available.  
Collimator lets it possible to solve simultaneously two tasks: *collimating* and *shaping* the laser beam.

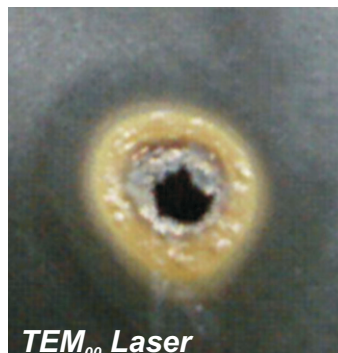
$\pi$ Shaper produces collimated Flattop beam (like Greek letter  $\pi$ ) over a large working distance.  
This enables to manipulate and re-size the beam with conventional imaging optics.

Almost the same effective sizes of input and output beams let it easy to integrate the  $\pi$ Shaper in your application.

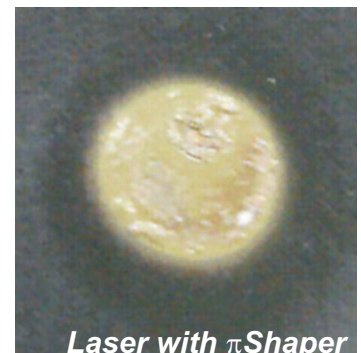
Originally designed as achromatic optical system each model of the  $\pi$ Shaper can work simultaneously with various lasers of corresponding spectrum.

Applications:

- Welding of metals and plastics
- Marking and Engraving
- Printing
- Scribing
- Material micromachining
- Laser ablation
- Fiber lasers based



*TEM<sub>00</sub> Laser*



*Laser with  $\pi$ Shaper*

*Comparison of engraving results (Courtesy of EO Technics)*

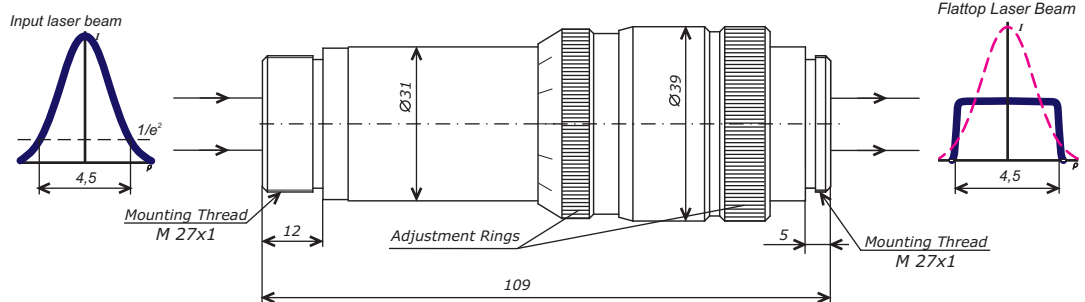
## **Beam Shaping never was so easy!**

# No more losing of energy!

## Technical Specifications

Common for all $\pi$ Shaper 4.5_4.5 models:		
Input beam	TEM <sub>00</sub> or multimode with Gaussian or similar intensity profile	
Output beam	<ul style="list-style-type: none"> <li>- Collimated</li> <li>- Flat-top, uniformity within 5%</li> <li>- Diameter 4.5 mm (FWHM)</li> <li>- High edge steepness</li> </ul>	
Other features	<ul style="list-style-type: none"> <li>- Compact design suitable for scientific and industrial applications</li> <li>- Achromatic for design wavelengths</li> <li>- Long working distance</li> </ul>	
Overall dimensions	<ul style="list-style-type: none"> <li>- Diameter 39 mm</li> <li>- Length 109 mm</li> </ul>	
Weight	200 g	
Mounting	M27x1	
Features		
Model	<b><math>\pi</math>Shaper 4.5_4.5_1064</b>	<b><math>\pi</math>Shaper 4.5_4.5_1064_C</b>
Input beam features	<ul style="list-style-type: none"> <li>- Collimated</li> <li>- Diameter 4.5 mm (1/e<sup>2</sup>)</li> </ul>	<ul style="list-style-type: none"> <li>- Divergent</li> <li>- Divergence 180 mrad (1/e<sup>2</sup>)</li> </ul>
Type	Telescope of Galilean type (without internal focus)	Collimator, without internal focus
Operating wavelength range	1020-1100 nm	
Design wavelengths	1064 nm (Nd:YAG), 632.8 nm (He-Ne)	
Applications based on	Nd:YAG, Fiber and other near IR-lasers	

**$\pi$ Shaper\_4.5\_4.5\_1064 (Telescope Version)**



**$\pi$ Shaper\_4.5\_4.5\_1064C (Collimator Version)**

