

Focal- π Shaper_Q

high efficient laser beam shapers for focused spots transforming Gaussian to Flat-top or Donut profiles

Applications:

- 3D Printing (Selective Laser Melting)
- Micromachining
- Drilling
- Scribing
- Microwelding
- Solar Cell processing
- Cutting



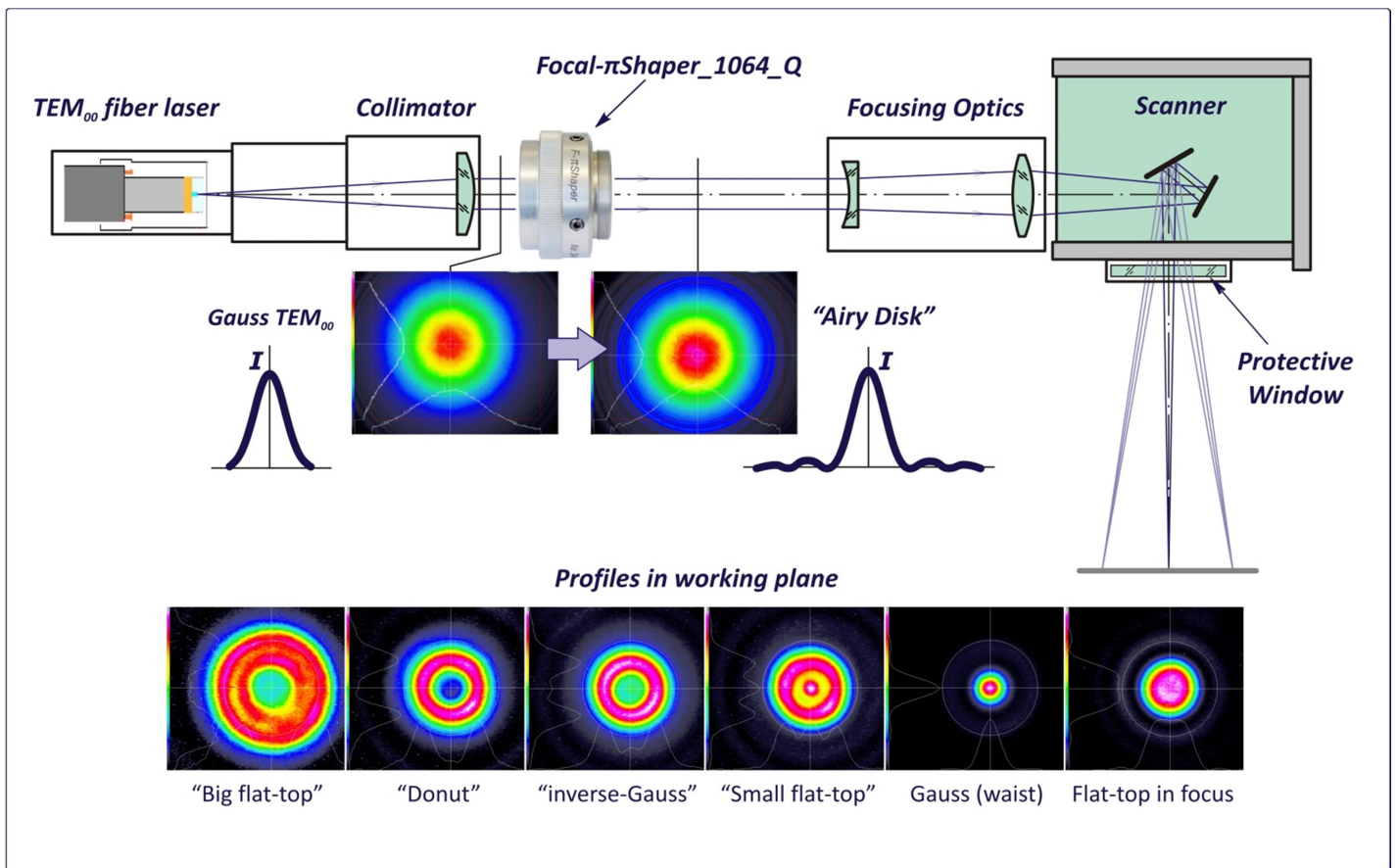
Specifications

Common for all Focal- π Shaper_Q models								
Description	Beam shaper, lossless transforming Gaussian beam to the beam with Airy disk profile to get Flat-top or Donut focused spots with minimized side-lobes							
Input beam	<ul style="list-style-type: none"> • TEM₀₀, typically M²<1.5 • Divergence within ± 20 mrad range 							
Transmission	>99% in the working spectral range							
Alignment	X / Y lateral translation, ± 2 mm range							
Features								
Model	Input \emptyset 1/e ² , mm	max. CW power, kW	Spectrum, nm	CA, mm	Dimensions, mm		Weight, g	Mounting threads
					\emptyset	Length		
Focal- π Shaper_1064								
_Q-4	3-5	0.5	1020-1100	20	42	29	50	M30x0.75 outer/inner
_Q-5	4-6	1						
_Q-7.5	6-9	1.5						
_Q-10	8-12	1.5		38	64	21	70	<ul style="list-style-type: none"> • M58x1 outer/inner • Adapter M30x0.75
_Q-17	15-20	2						
_Q-20	18-23	2						
Focal- π Shaper_TiS								
_Q-5	4-6	1	750 - 900	20	42	29	50	M30x0.75 outer/inner
_Q-7.5	6-9	1.5						
_Q-10	8-12	1.5						
Focal- π Shaper_NUV								
_Q-5	4-6	1	335 - 560	20	42	29	50	M30x0.75 outer/inner
_Q-7.5	6-9	1.5						
_Q-10	8-12	1.5						
Focal- π Shaper_266								
_Q-5	4-6	0.5	250 - 275	20	42	29	50	M30x0.75 outer/inner
_Q-7.5	6-9	0.5						
_Q-10	8-12	0.5						

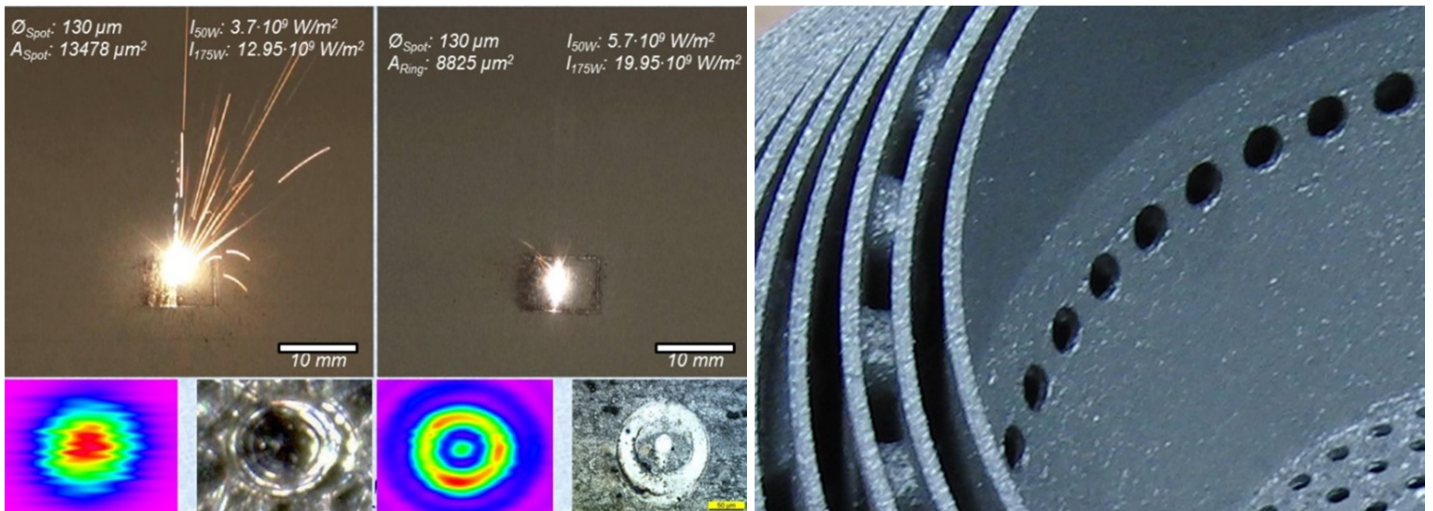
Specifications are subject to change without notice

Beam Shaping never was so easy!

Example of layout for Selective Laser Melting (SLM) with TEM₀₀ fiber laser



Example of SLM processing (Courtesy of Forschungszentrum Jülich)



Gaussian "Donut"
Gaussian to "Donut" spot switching optimizes processes:

- less sparking,
- less porosity of a workpiece,
- more efficient use of laser energy.

Fragment of a part made using SLM equipment with an optical system optimized for reliable processing, providing low porosity and smooth external surfaces:

- *Focal- π Shaper* creates the "Donut" spot, and
- *aThermoXX* window minimizes the thermally induced focus shift and aberration.