



Slow Axis Collimators with Smile Correction



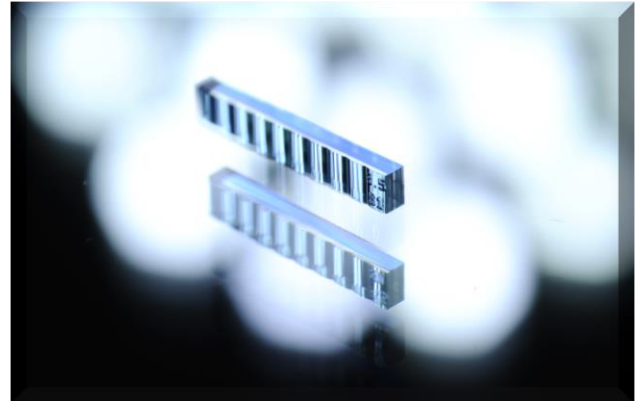
PowerPhotonic
Enhancing Beam Performance

Overview

PowerPhotonic's range of slow axis collimator optics with smile correction (SmileSAC) is unique in the industry. They are used to simultaneously reduce the slow axis divergence and smile error of a diode laser bar. The SmileSACs consist of a monolithic array of cylindrical lenses with additional smile error correction in a single optic. They are available in a range of standard focal lengths, pitch combinations and smile error correction options. Standard products have parabolic smile correction, but they can be specified with custom pointing error correction for each emitter.

PowerPhotonic's SACs with smile correction are manufactured using the company's patented laser micro-machining process, which provides unparalleled performance and flexibility. The optical surface is ultra-smooth, resulting in very low scatter.

They are compatible with different laser bars and stacks, and can be specified in systems with consistent smile errors, selected at production test or individually customized per bar.



Key Features

- UV-fused silica
- Monolithic design
- Efficient collimation
- Transmission >99%
- Long term mechanical stability
- Built in smile correction

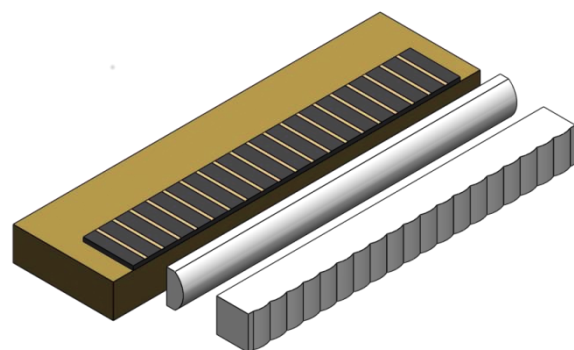
Benefits

- Reduces residual smile to less than 0.2mrad r.m.s.
- Compatible with off-the-shelf FACs
- Suitable for laser diode stack assembly
- Flexible part size
- Reduced assembly size with two optics combined into one
- Low scatter

Target Applications

- High power laser diode bars stacks
- Solid-state laser end pumping
- Wavelength-locked systems
- Fiber-coupled direct diode
- Free-space direct diode

How they are Used



Standard Product Selection

Part Number	NA	Focal Length EFL (mm)	Pitch P (mm)	Length L (mm)	Height H (mm)	Thickness T (mm)	# Emitters	Smile P-V (mrad)
PP-SAC-F220-P50-S5-V1-AR5	0.10	2.20	0.50	12.0	1.50	1.00	19	0.5
PP-SAC-F220-P50-S10-V1-AR5	0.10	2.20	0.50	12.0	1.50	1.00	19	1.0
PP-SAC-F220-P50-S20-V1-AR5	0.10	2.20	0.50	12.0	1.50	1.00	19	2.0
PP-SAC-F220-P50-S30-V1-AR5	0.10	2.20	0.50	12.0	1.50	1.00	19	3.0
PP-SAC-F400-P50-S10-V1-AR5	0.06	4.00	0.50	12.0	1.50	1.00	19	1.0
PP-SAC-F400-P50-S20-V1-AR5	0.06	4.00	0.50	12.0	1.50	1.00	19	2.0
PP-SAC-Fxxx-Pxx-Sxx-Vx-ARx	Custom	Custom	Custom	Custom	Custom	Custom	Custom	Custom

AR5 optical coating: Broadband 785-1030nm R<0.5% , other coatings on request

NA: Numerical aperture

EFL: Effective focal length @ 808nm

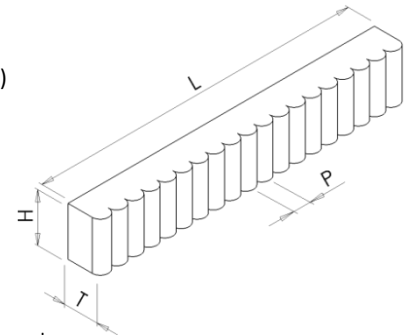
P: Pitch of emitter

All custom parameters can be customer specified

L: Length (+/-0.10mm)

H: Height (+/- 0.05mm)

T: Thickness (+/- 0.02mm)



Customization Program

Due to the unique nature of the PowerPhotonic manufacturing process, our standard products can be easily modified to meet specific requirements. Please contact the factory for additional information.

Options

- ☉ Effective Focal length
- ☉ Pitch, Length, Height, Thickness
- ☉ Number of emitters
- ☉ Coatings
- ☉ Smile correction value
- ☉ Collimation of complete stack

About Us

PowerPhotonic is a global leader in precision laser machined micro-optics products. Our business was founded with the objective of providing unsurpassed excellence in all aspects of design and manufacture of micro-optics for optical and laser applications. Our world-class design skills are supported by an innovative and flexible manufacturing process that allows the company to design both a broad range of state-of-the-art standard micro-optics products and uniquely, to offer a low cost and rapid fabrication service for creating completely freeform optical surfaces

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