Overview

PowerPhotonic’s range of fast axis collimator (FAC) arrays is designed to interface to complete laser diode stacks. They allow the entire diode stack output to be collimated with a single element, providing an ultra-compact and robust solution that radically simplifies the cost and time of assembly of the complete system.

The FAC array can either be specified with a standard bar pitch or, for optimal performance, matched to the diode bar stack using bar pitch data provided by the customer. As a further optimization, PowerPhotonic offers customers the ability to customize the FAC array to tailor the far field profile to meet specific application requirements.

Key Features

- UV-fused silica
- Single monolithic FAC array
- High beam quality for QCW stack collimation and beam symmetrization
- Fixed pitch increments, for select-on-test use
- Matched-pitch, to optimize collimation of a specific stack
- Single FAC element for a diode stack

Target Applications

- QCW laser diode stacks
- Solid state laser pumping
- Illuminators
- Line generators
- Medical
- Materials processing

Benefits

- Single optic collimates entire stack
- Minimizes assembly time and build complexity with single active align and attach
- Low mounted mass, minimum number of mechanical interface
- Mechanically robust monolithic solution

How it is Used

Covered by U.S. Patent No. 8,570,657
### Standard Product Selection

<table>
<thead>
<tr>
<th>Part Number</th>
<th>NA</th>
<th>Effective Focal Length EFL (um)</th>
<th>Design Working Distance B (um)</th>
<th>Length L (mm)</th>
<th>Height H (mm)</th>
<th>Thickness T (mm)</th>
<th>FA Nominal Pitch P (um)</th>
<th>#Bars</th>
<th>Slow Axis Clear Aperture C (mm)</th>
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<td>PP-FACA-P350-N10-V1-AR5</td>
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</tbody>
</table>

AR5 optical coating: Broadband 785-1030nm R<0.5%, other coatings on request
NA: Numerical aperture
P: Fast axis nominal pitch
EFL: Effective focal length @ 808nm
All custom parameters can be customer specified

### 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 PowerPhotonic for additional information.

### Options

- EFL, Conic Constant and Design Working Distance
- Length, Height and Thickness
- AR Coatings
- Fast Axis Bar Pitch
- Number of Bars
- Slow and Fast Axis Aperture
- Specified divergence profile
- Additional optical functions

### 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 micro-optics product design 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.

### For Sales and Technical Support

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