

## Overview

PowerPhotonic High Power Diode Laser (HPDL) beam correctors null laser beam wavefront error, restoring the intrinsic ex-facet brightness of the laser beam.

These products provide near-diffraction limited performance in fast-axis collimated beams by decreasing beam divergence, improving beam homogeneity and coupled power, and increasing laser beam brightness by between 2 and 10 times.

Our HPDL Beam correctors compensate for emitter pointing variation, defocus and higher-order wavefront errors, and align all bars to a common boresight direction, resulting in a high-brightness beam with consistent pointing and divergence. This provides predictable beam performance, and, for the first time, allows high power diode laser stacks to be used as interchangeable parts.

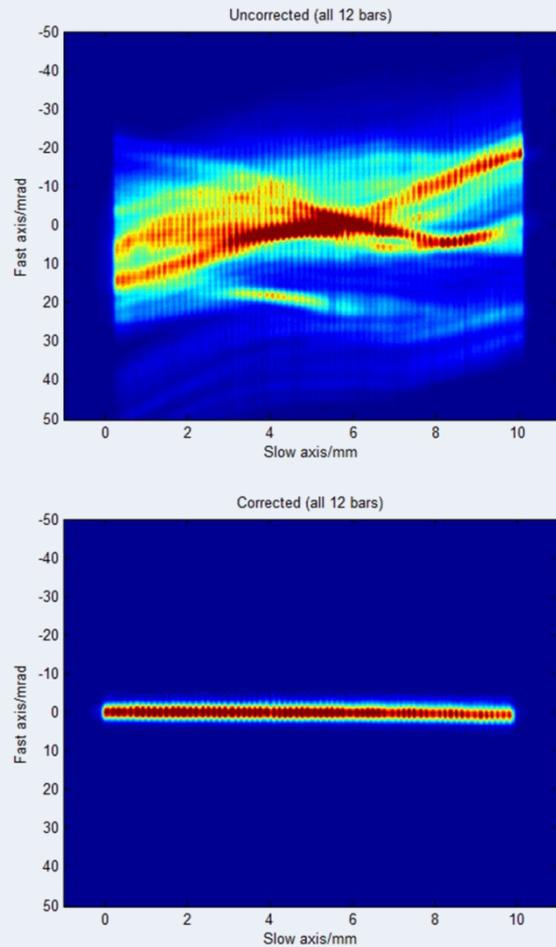
The resulting collimation performance gives exceptionally well-controlled feedback in grating-stabilized applications resulting in high locking efficiency, increased locking range and predictable performance build after build.

## Key Features

- Nulls laser beam wavefront error, restores intrinsic ex-facet brightness of the laser beam
- Provides near-diffraction limited performance in fast-axis collimated beams
- Mass-customization allows optimized part to be fabricated for each individual bar and stack
- Automated design based on either wavefront or beam profile data
- Each part marked with readable, traceable ID code

## Benefits

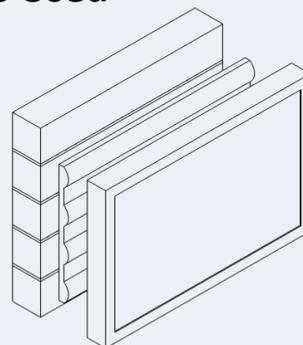
- Improve brightness of diode bars and stacks by between 2 and 10 times.
- Decreases beam divergence, improves beam homogeneity and coupling power
- Optimizes feedback in grating stabilized applications, maximizing locking efficiency and locking range
- Reduces stack-to-stack variation, allowing stacks to be treated as interchangeable parts



## Target Applications

- High brightness diode laser bars and stacks
- Fiber-couple direct-diode
- Fiber laser pump
- Wavelength-locked applications
- Line generators

## How it is Used



## Standard Product Selection

Part Number	#Bars N	FA Nominal Pitch P (mm)	SA Clear Aperture CAS (mm)	Width W (mm)	Height H (mm)	Thickness T (mm)	# Emitters	Emitter Pitch
PP-BC-N1-V1-AR1	1	-	9.50	12.0	1.50	1.00	19	0.5
PP-BC-N5-P18-V1-AR1	5	1.80	9.50	12.0	10.00	1.00	19	0.5
PP-BC-N10-P18-V1-AR1	10	1.80	9.50	12.0	20.00	1.00	19	0.5
PP-BC-N12-P18-V1-AR1	12	1.80	9.50	12.0	25.00	1.00	19	0.5
PP-BC-N6-P20-V1-AR1	6	2.00	9.50	12.0	14.00	1.00	19	0.5
PP-BC-N10-P20-V1-AR1	10	2.00	9.50	12.0	22.00	1.00	19	0.5
PP-BC-Fxx-Pxx-Vx-ARx	tbd	tbd	tbd	tbd	tbd	tbd	tbd	tbd

AR1 optical coating: Broadband 900-1100nm R<0.25%, other coatings on request

SA: Slow axis

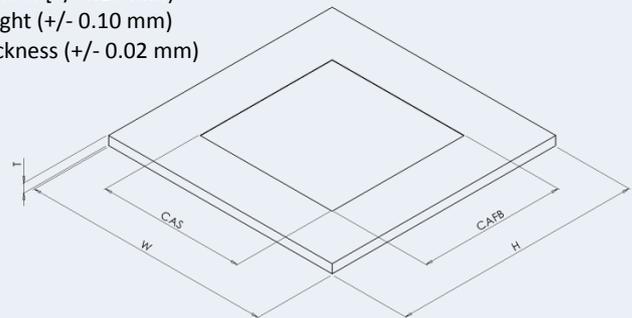
FA: Fast axis

All tbd parameters can be customer specified

W: Width (+/-0.10 mm)

H: Height (+/- 0.10 mm)

T: Thickness (+/- 0.02 mm)



## 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

- Pitch, Length, Height, Thickness
- Number of emitters
- Number of bars
- Coatings
- Slow-axis collimation
- Pre-correction for optical system aberrations

## 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.

## For Sales and Technical Support

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