

CPTEC

ULTRAFAST LASER AMPLIFIER



FEATURES

- Monolithic, All-Fiber Amplifier
- No Free-Space Coupling
- Space-Qualified
- Low Service Burden
- Splice-and-Go Functionality
- No Optical Alignment Required
- Laptop-Size Footprint
- Parallel Scalable Architecture

MODELS



CPTEC TGF

Wavelength: 1030–1080nm
Fiber: INO FastFBR Yb-MCOF-35/250-56/400-07-2.2-T0.7-PM

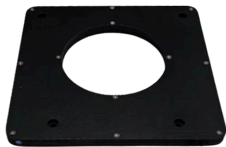
Average Power	400W
Pulse energy	1mJ
Efficiency	>70%



CPTEC 2µm

Wavelength: 1900–2050nm
Fiber: NKT DC-250/50-PM-TM

Average Power	100W
Pulse energy	5mJ
Efficiency	>35%



CPTEC VLMA

Wavelength: 1030–1080nm
Fiber: Exail IXF-VLMA-40-220-PM-YB-V

Average Power	150W
Pulse energy	500µJ
Efficiency	>70%



CPTEC 3C

Wavelength: 1030–1080nm
Fiber: nLight 3C 85µm Yb700-85/320DC-3C

Average Power	330W
Pulse energy	10mJ
Efficiency	>35%

DIRECT PUMPING

CPTEC's all-fiber design eliminates alignment and prevents contamination while also reducing thermal lensing, mechanical sensitivity, and self-phase modulation compared to bulk amplifiers. Each gain fiber delivers excellent ultrafast performance and mode filtering with true splice-and-go operation - no free-space optics required.

INDUSTRIES

- Semiconductor & Micro-Fabrication
- Medical Devices & Life Sciences
- Aerospace & Space Systems
- Defense & Navigation
- Scientific Research & Labs
- Industrial Manufacturing

APPLICATIONS

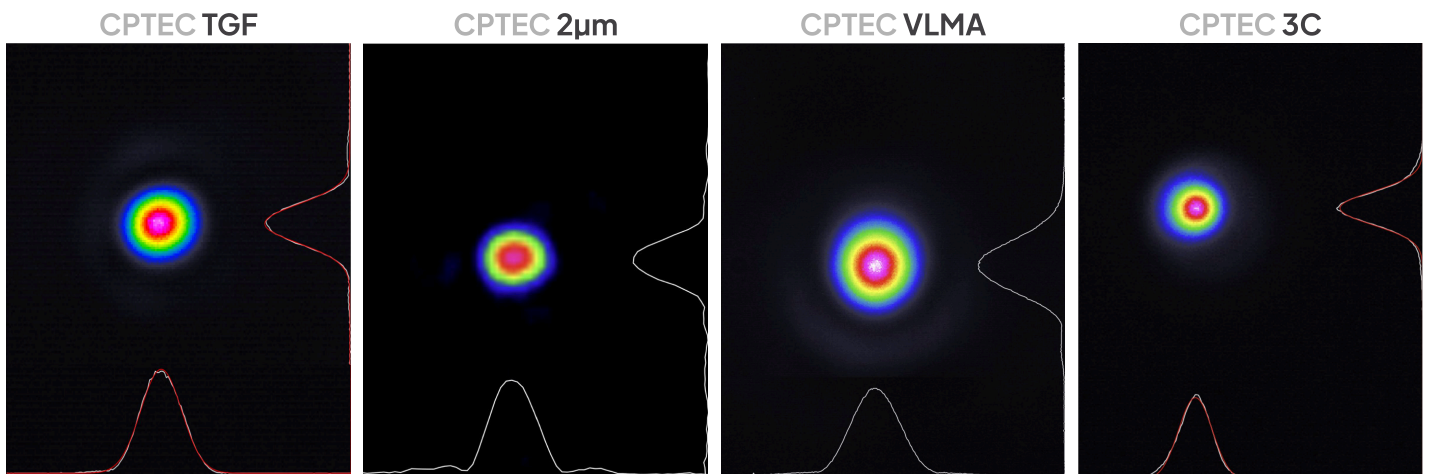
- Ultrafast Amplification
- Large-Area Surface Processing
- Material Processing
- LIDAR/LADAR
- Digital Laser Arrays
- Medical Processes
- High Energy CBC Arrays

PERFORMANCE SPECIFICATIONS

Optical	TGF	2 μ m	VLMA	3C
Gain, Bandwidth (nm)	1030-1080	1900-2050	1030 - 1080	1030-1080
Gain (dB)	30 @ 1064			
Maximum Output Power, CW (W)	400W	100W	150W	330W
Peak Power (kW)	<1000	<1000	<1000	<1600
Pulse Energy (mJ)	1	5	0.5	10
Beam Quality (M ²)	<1.3	1.2	1.2	1.2
Ellipticity (%)	≥ 90			
Centration (%)	≥ 85			
PER (dB)	≥ 5			
Input	TGF	2 μ m	VLMA	3C
Pump Power (W)	<550	<300	<250	<300
Pump Fiber (μ m)	200/220 0.22NA	200/220 0.22NA	105/125 0.22NA	200/220 0.22NA
Wavelength (nm)	976 (stabilized)	793	976 (stabilized)	976 (stabilized)
Seed Power (mW)	10-1000			
Signal Fiber (μ m)	PM10/125 DC	PM25/250 DC	PM10/125 DC	Free-space or PM14/125
Input	TGF	2 μ m	VLMA	3C
Dimensions (mm, L x W x H)	400 x 345 x 11	400 x 454 x 14	220 x 220 x 11	100 x 100 x 2000
Weight (kg)	<2.8	<2	<1	<5
Environmental	TGF	2 μ m	VLMA	3C
Operating Temperature ($^{\circ}$ C)	10-30			
Storage Temperature ($^{\circ}$ C)	-20-60			
Water Cooling ($^{\circ}$ C)	20			
Cooling Plates	Available	Available	Available	Built-in

*Specifications subject to change without notice.

BEAM PROFILES

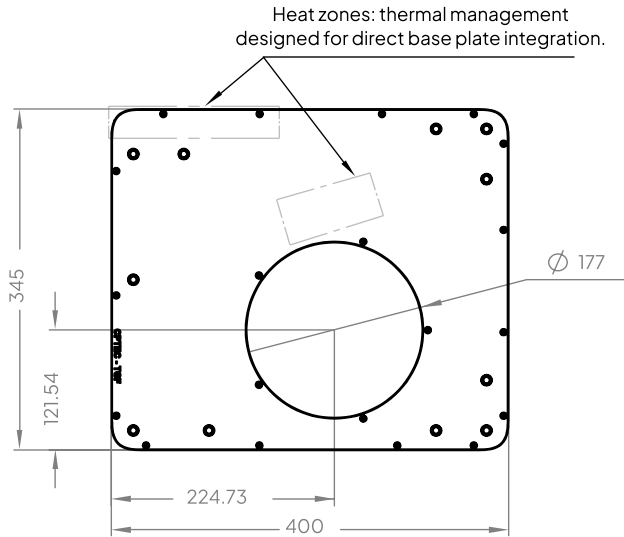


MECHANICAL SPECIFICATIONS

CPTEC TGF

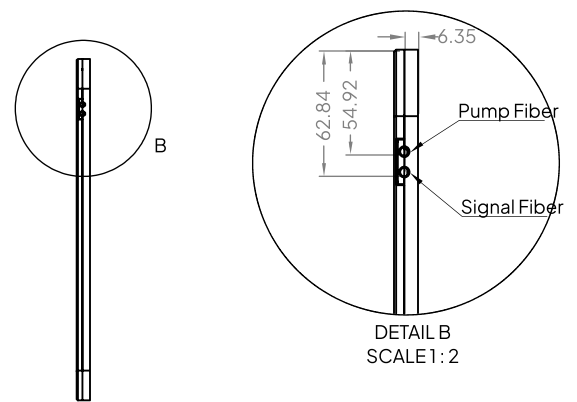
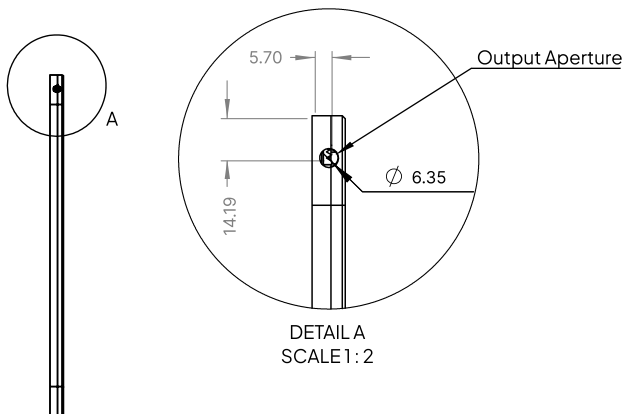
TOP VIEW

SIDE VIEW



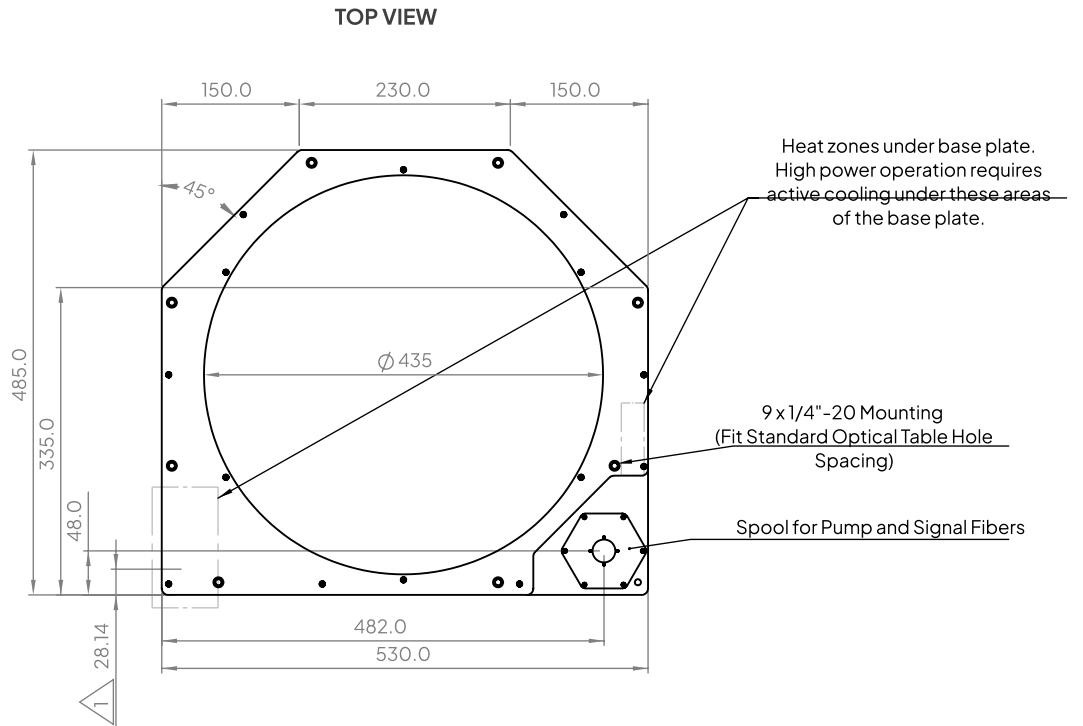
FRONT VIEW

REAR VIEW



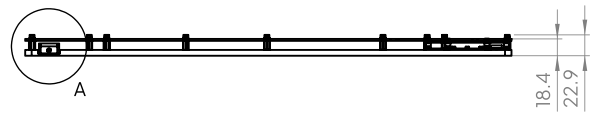
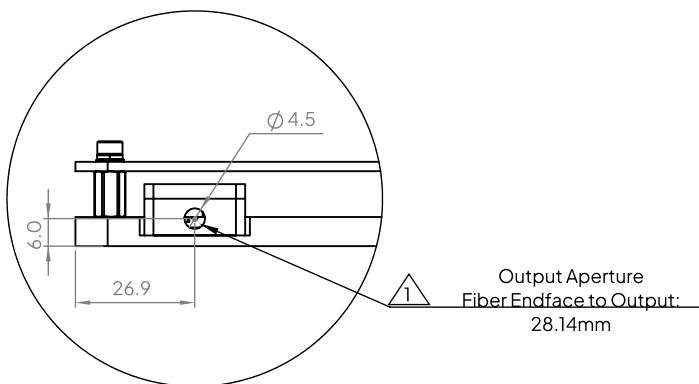
MECHANICAL SPECIFICATIONS

CPTEC 2 μ m



APERTURE VIEW

REAR VIEW

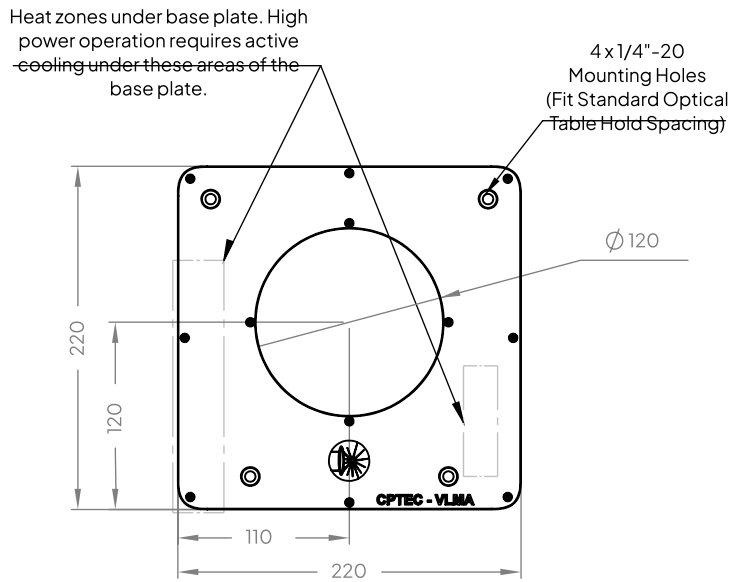


DETAIL A
SCALE 1:1

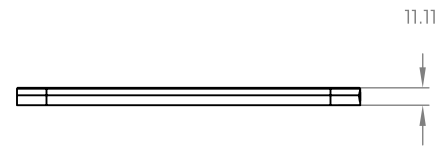
MECHANICAL SPECIFICATIONS

CPTEC VLMA

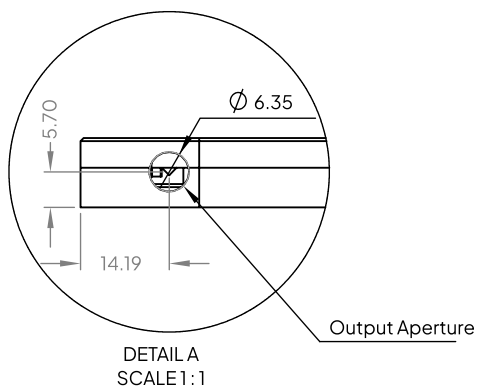
TOP VIEW



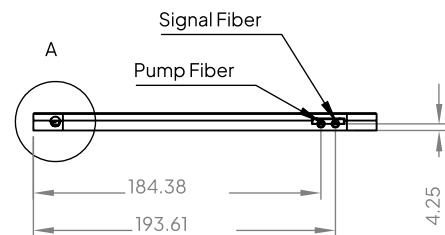
SIDE VIEW



APERTURE VIEW (FRONT)



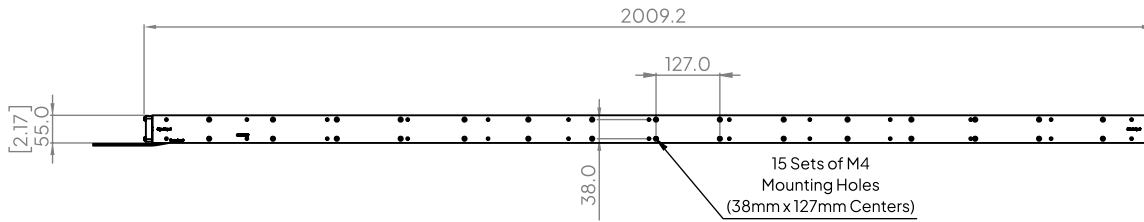
FRONT VIEW



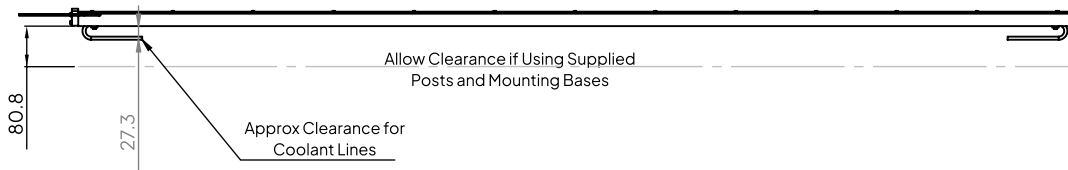
MECHANICAL SPECIFICATIONS

CPTEC 3C

TOP VIEW



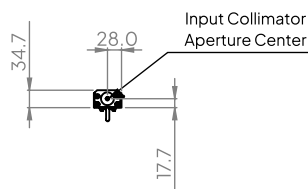
SIDE VIEW



BOTTOM VIEW



INPUT VIEW



OUTPUT VIEW

