

FEMTOPOWER™

compact™ PRO HE

| sub-25 fs |

| 2 mJ |

| 1 kHz |

| high contrast |

Applications

Time-resolved spectroscopy

Frontend for high power
ultrafast amplifier systems

Femtochemistry

Coherent THz generation

Materials processing

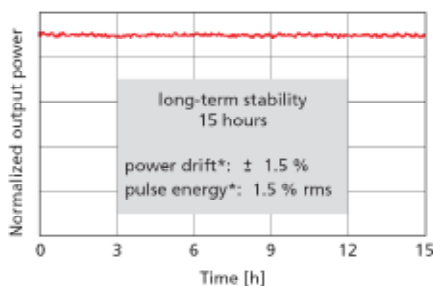
OPA pumping



The **FEMTOPOWER™ compact™ PRO HE** is an ultrafast Ti:Sapphire multipass amplifier using a sealed vacuum chamber system for the amplifier crystal and Dispersive Mirror (DM) technology for dispersion compensation. The system generates the shortest, high energy optical pulses commercially available with unprecedented quality, stability, and reproducibility. This compact multipass system is the optimum choice for a wide range of scientific, industrial, and medical applications.

Ultrashort Pulses

By employing an ultra broadband multipass scheme and DM technology, high quality, sub-25 fs pulses can be generated from a Ti:Sapphire kHz amplifier constituting the state of the art of high power, high repetition rate lasers (*Optics Letters, Vol. 22, No. 20, pp. 1562, Oct. 15, 1997*).



* Measured with a FEMTOPOWER™ compact PRO after 3 hours warm up and environmental conditions of $20^\circ \pm 0.5^\circ\text{C}$ and a relative humidity of $50\% \pm 5\%$

FEMTOPOWER™

compact™ PRO HE

Extraordinary Features

- Ultrashort pulses
- Highest pulse quality and stability
- Excellent pulse contrast
- Broad spectrum | Compact footprint
- Ultra high peak power
- Ultrafast oscillator output

Efficiency & Pulse Quality

The use of DM technology allows the elimination of standard diffraction gratings, giving the highest efficiency and best pulse quality available from any commercial highpower ultrafast amplifier.

Compactness

The use of FEMTOLASERS™ proprietary ultra broadband oscillator as seed source (> 100 nm bandwidth) allows the replacement of a grating stretcher with the compact dispersive delay line. Innovations in transmission grating based compression technology result in a significant reduction of the overall system size.

Stability & Reliability

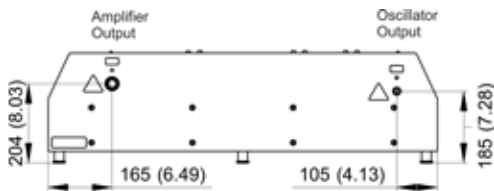
The amplifier crystal is cooled in a vacuum chamber preventing dust mediated damage to the amplifier crystal. The new evaporation cooling system ensures reduced thermal lensing as well as highest reliability and stability proven in CEP stabilized operation.

The compact footprint, as well as the superior mechanical and optical design of the entire system yield long term stability. Sufficient saturation of the Ti:Sapphire guarantees high pulse-to-pulse stability.

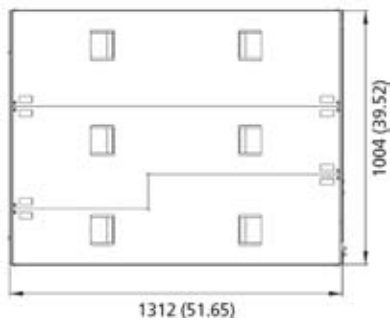
FP compact™ PRO HE - SIDE VIEW, Dimensions in [mm] ([in])



FP compact™ PRO HE - FRONT VIEW, Dimensions in [mm] ([in])



FP compact™ PRO HE - TOP VIEW, Dimensions in [mm] ([in])



FEMTOPOWER™ compact™ PRO HE	Amplifier PRO HE	Oscillator (optional exit)
Pulse duration	< 30 fs < 25 fs	< 12 fs < 10 fs
Spectral width (FWHM) @ 800 nm	> 40 nm	> 75 nm > 100 nm
Repetition rate	1 kHz	75 MHz
Pulse energy	> 2 mJ	2.3 - 9 nJ
Peak power	> 65 GW > 80 GW	220 kW - 900 kW
Beam diameter (1/e ²) Beam divergence	20 mm (nom.) < 2 mrad	< 2 mm < 2 mrad
Beam pointing stability (optional active stab.)	< 10 μrad rms @ Ø 20 mm	-
Spatial mode	TEM ₀₀ (M ² < 1.5)	TEM ₀₀ (M ² < 1.3)
Polarization	linear, horizontal	linear, horizontal
Pulse to pulse energy stability	< 1.5 % rms	< 0.1 % rms
Temporal contrast (ASE)	< 1:10 ⁻⁹	-

All specifications are subject to change without notice



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FEMTOLASERS' laser products are certified to comply with the Federal Regulations (21 CFR Subchapter J) as administered by Center of Devices and Radiological Health on all systems ordered for shipment after October 1, 2003.