

HELIOS

High-Power Femtosecond Solid-State Laser



Maximum customizable single pulse energy:
up to 400 μ J

Maximum average power: up to 40W

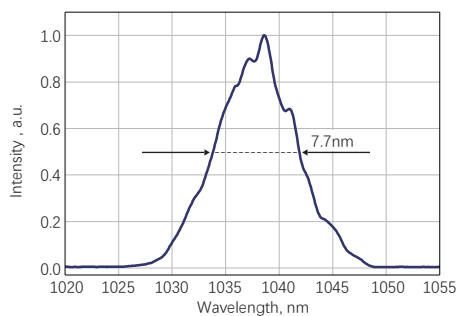
Adjustable pulse width: 190fs - 10ps

Repetition rate: single shot to 1MHz

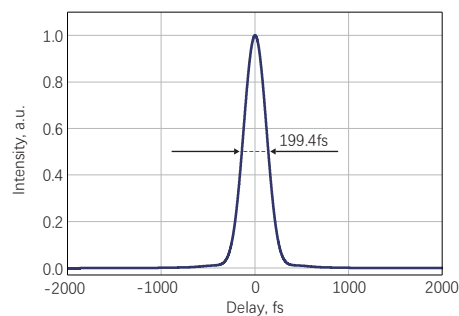
Laser output mode: TEM00, $M^2 < 1.2$

Power stability: < 0.5% RMS

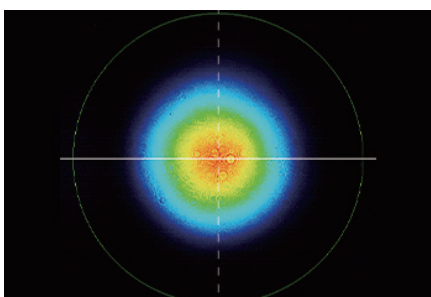
HELIOS-40W-HP Typical Spectrum



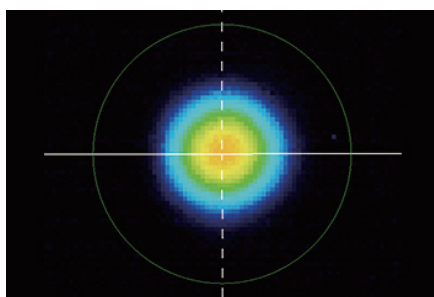
HELIOS-40W-HP Typical Pulse Width



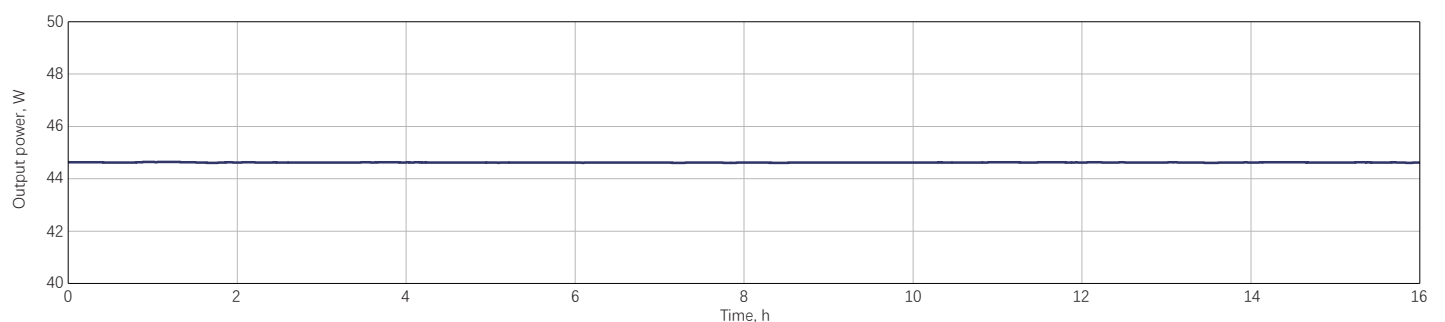
HELIOS-40W-HP Near-Field Beam Profile



HELIOS-40W-HP Far-Field Beam Profile

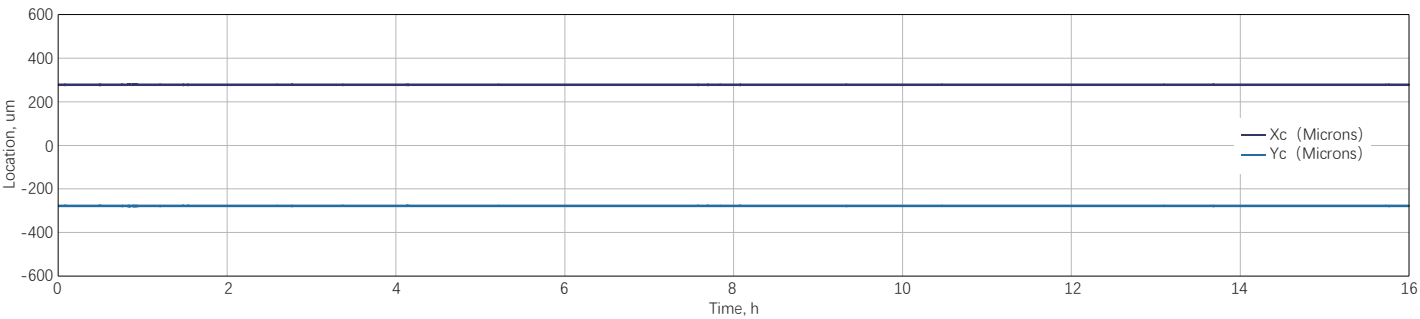


HELIOS-40W-HP
Power Stability: RMS=0.03% @ 16h



HELIOS-40W-HP High-Power Femtosecond Solid-State Laser

HELIOS-40W-HP
Pointing Stability:RMS=0.91μrad@16h



Specifications

Parameter	HELIOS-40W-HP
Maximum output power	40W
Maximum single pulse energy	400μJ
Pulse duration	<250fs (190fs optional)
Pulse width adjustment range	250fs - 10ps (190fs - 10ps optional)
Repetition frequency range	10kHz - 100kHz (10kHz - 1MHz) optional
Pulse selection	Single shot - 100kHz (Single shot - 1MHz) optional
Central wavelength	1036 ± 5nm
Polarization	Vertical
Beam quality	M ² <1.2
Beam diameter	5 ± 1mm
Pulse pointing stability	< 20 μrad/°C
Pre-pulse contrast	<1:1000
Post-pulse contrast	<1:500
Pulse energy stability	<1% RMS @8h
Long-term power stability	<0.5% RMS @24h
Dimensions	885 × 455 × 221mm (L×W×H)
Weight	77kg
	Expansion Options
Harmonic output	Integrable, 516nm, 345nm, 259nm
Optical parametric amplification output	Integrable, 210 - 1600nm
MPC short pulse output	Integrable, output pulse width <35fs, energy transmission efficiency >90%
Operating Modes	PSO, POD, Gate, Burst, etc.
Remaining weight	24kg (Water-cooled machine) +2kg (frequency doubling)
Power supply requirements	Laser head: AC 220V/10A ; Water-cooled machine: 220V/0.6-7.7A/1.26kW (CWUP-20AI)

Drawings

HELIOS-40W-HP Outline Drawing

