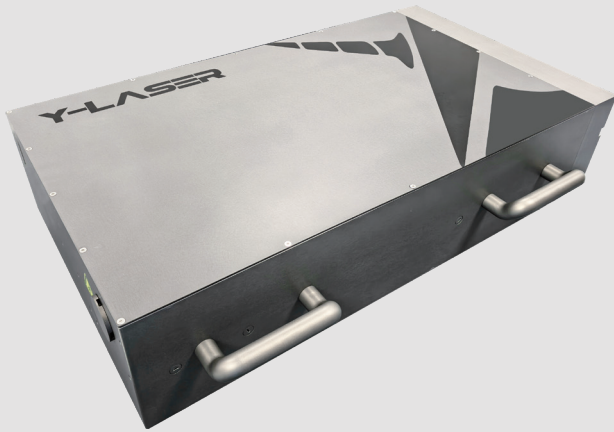


# HELIOS

## High-Energy Femtosecond Solid-State Laser



Maximum customizable single pulse energy: up to 3mJ

Maximum average power: up to 20W

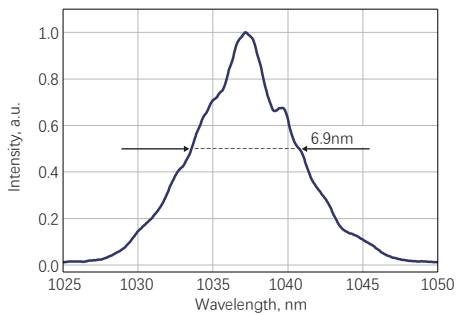
Adjustable pulse width: 190fs – 10ps

Repetition rate: single shot to 1MHz

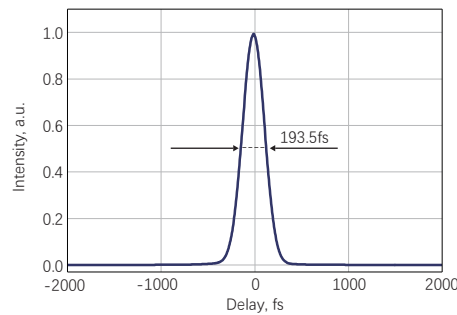
Laser output mode: TEM00,  $M^2 < 1.2$

Power stability:  $< 0.5\%$  RMS

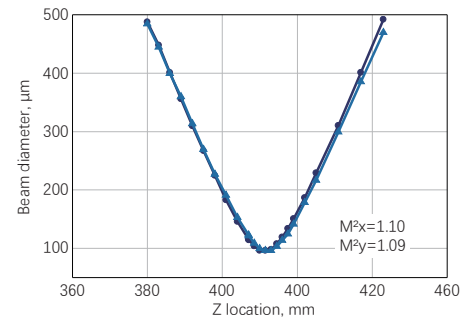
HELIOS-HE Typical Spectrum



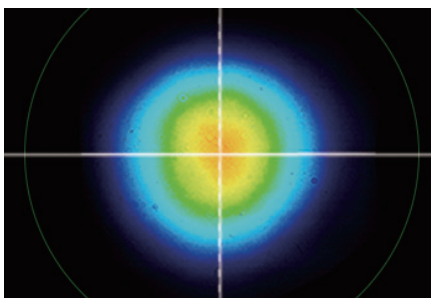
HELIOS-HE Typical Pulse Width



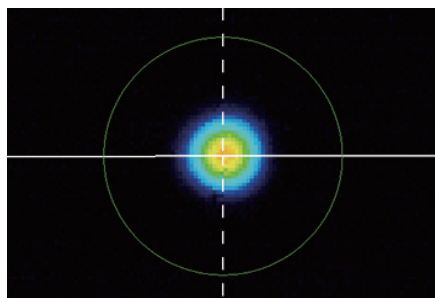
HELIOS-HE Typical  $M^2$  Measurement Data



HELIOS-HE Typical Near-Field Beam Profile

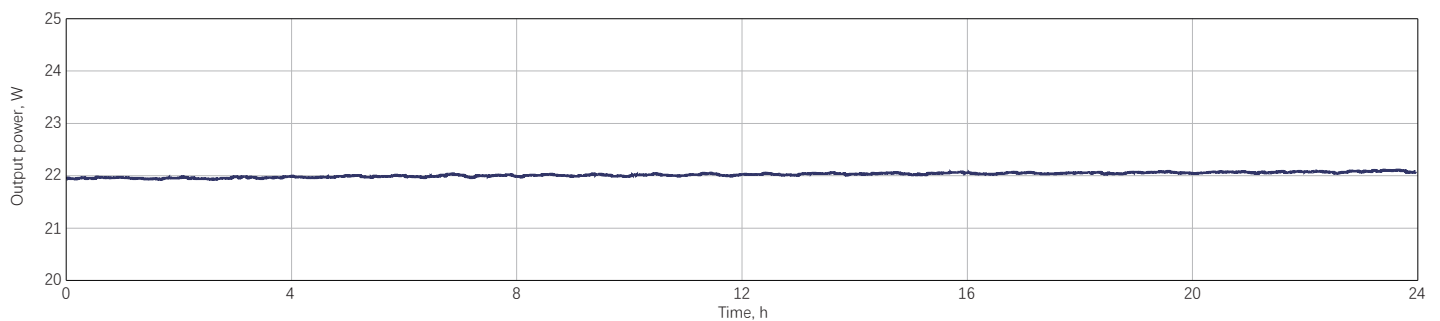


HELIOS-HE Typical Far-Field Beam Profile



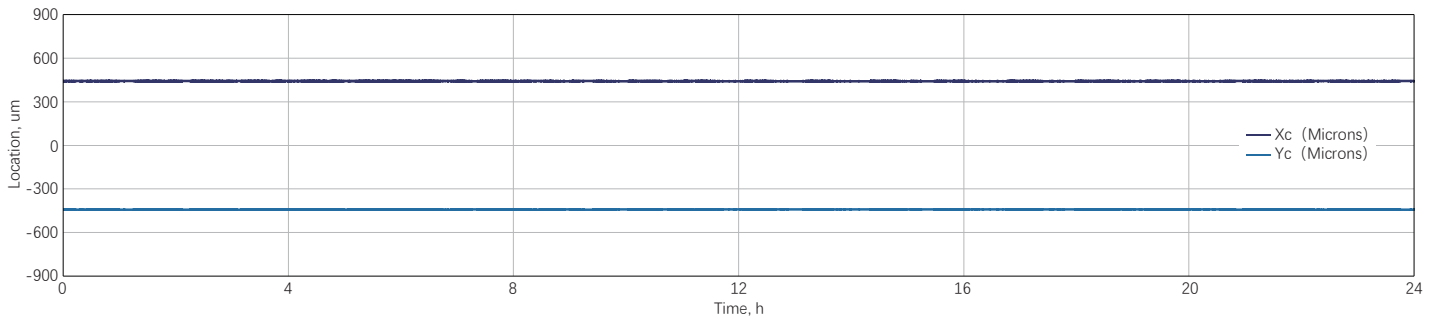
HELIOS-HE

Power Stability: RMS=0.1903%@24h



HELIOS-HE

Pointing Stability: RMS=2.2 $\mu$ rad@24h

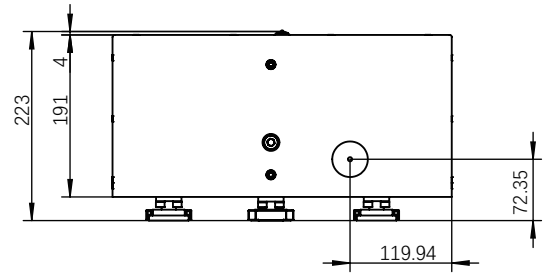
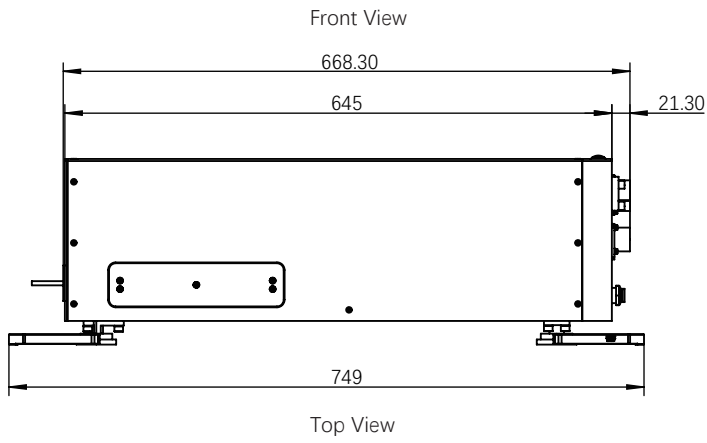


Specifications

Parameter	HELIOS-10W-HE	HELIOS-20W-HE
Maximum output power	10W	20W
Maximum single pulse energy	1mJ	2mJ
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 $\pm$ 5nm	
Polarization	Linear polarization	Vertical
Beam quality	$M^2 < 1.2$	
Beam diameter	5 $\pm$ 1mm	6.2 $\pm$ 0.6mm
Pulse pointing stability	< 20 $\mu$ rad/ $^{\circ}$ 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	668 $\times$ 400 $\times$ 223mm (L $\times$ W $\times$ H)	871 $\times$ 418 $\times$ 211mm (L $\times$ W $\times$ H)
Weight	61kg	71kg
<b>Expansion Options</b>		
Harmonic output	Integrable, 516nm, 345nm, 259nm	
Optical parametric amplification output	Integrable, 210 - 16000nm	
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-10W-HE Outline Drawing



HELIOS-20W-HE Outline Drawing

