

Arco amplifiers offer outstanding performance:

best-in-class output parameters packaged in robust, reliable and user friendly configurations.

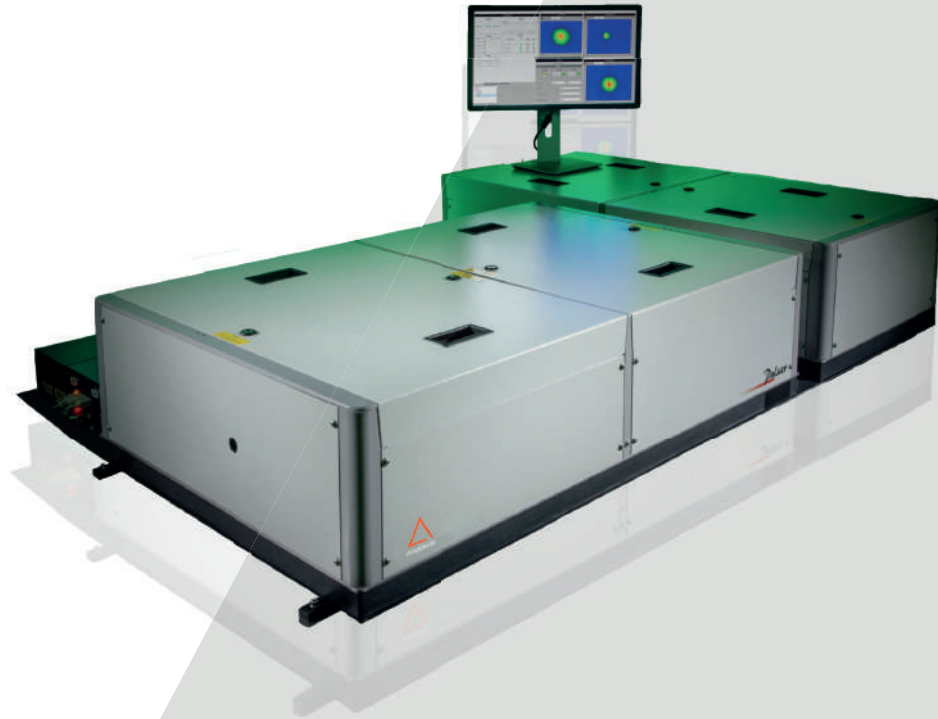
ARCO

High energy Ti:Sapphire amplifiers

The best of the Ti:Sapphire technology

Arco - the class of ultra-intense fs laser systems designed as the ideal light source for the most demanding applications. Arco amplifiers offer outstanding performance: best-in-class output parameters packaged in robust, reliable and user friendly configurations.

Arco ultrafast Ti:Sapphire lasers are built on a modular and versatile architecture and cover most exhaustive output parameter range on the ultrafast laser market.



Applications

Science:

- > High harmonic generation
- > Attophysics
- > Spectroscopy
- > Filamentation
- > Laser wakefield acceleration
- > Terahertz
- > Plasma study
- > Electron generation & acceleration

Key Features

- > 10 Hz, 100 Hz, 1 kHz repetition rates
- > Pulse energy from 1 mJ to 2.7 J
- > Amplitude-made pump lasers
- > Most versatile and robust architecture
- > Peak power up to 120 TW
- > Highest performance in class
- > Pulse duration down to 20 fs
- > Hybrid systems with dual repetition rate

ARCO C (100 Hz)

Specifications

Repetition Rate	100 Hz		
Energy Per Pulse (mJ) ¹	18 mJ	40 mJ	60 mJ
Pulse Width (fwhm) ¹	< 100 fs or < 35 fs or < 20 fs		
Central Wavelength (nm) ^{2,3}	800 ± 10		
Pulse To Pulse Energy Stability (RMS) ⁴	≤ 1 %		
Power Stability (RMS) ⁵	≤ 1.2 %		
Nanosecond Contrast ⁶	≤ 5.10 ⁻⁴		
Picosecond Contrast ⁷	10 ⁻⁵ @ < -5 ps, 10 ⁻⁶ @ < -10 ps, 5.10 ⁻⁷ @ < -50 ps		
Beam Quality M ²	≤ 1.5		
Pointing Stability (RMS)	≤ 10 μrad		
Polarization	Linear horizontal		
Warm-up Time	< 1 hour		

¹ Please contact factory for other energy and pulse duration level

² 790 nm +/- 10 nm for 100 fs pulse duration. Other central wavelength, please contact the factory

³ Factory set, must be specified when ordered and will be optimized prior to shipment

⁴ Over 2000 pulses

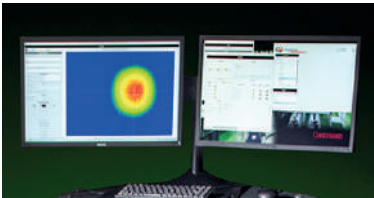
⁵ Over 8 hours under stable environmental conditions

⁶ Pre-pulse, regenerative amplifier replicas

⁷ Measured with third order cross-correlator (SEQUOIA)



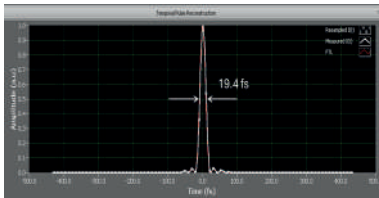
Surelite 4 pump laser



User friendly laser control software



Dazzler & Mazzler for spectral phase and amplitude control



< 20 fs duration

Options

- Down to 20 fs pulse durations
- External synchronization
- Laser 4.0 HE system control software

Accessories

- Energy attenuator
- Active beam pointing control
- SHG, THG, FHG harmonic generators



Specifications

Repetition Rate ¹	1 kHz		
Energy Per Pulse (mJ) ²	5 mJ	10 mJ	20 mJ
Pulse Width (fwhm) ³	< 100 fs or < 35 fs or < 20 fs		
Central Wavelength (nm) ⁴	800 ± 10		
Pulse To Pulse Energy Stability (RMS) ⁵	≤ 0.7 %		
Power Stability (RMS) ⁶	≤ 1 %		
Nanosecond Contrast ⁷	5.10 ⁻⁴		
Picosecond Contrast ⁸	10 ⁻⁵ @ < -5 ps, 10 ⁻⁶ @ < -10 ps, 5.10 ⁻⁷ @ < -50 ps		
Beam Quality M ²	≤ 1.5		
Pointing Stability (RMS)	≤ 10 µrad		
Polarization	Linear horizontal		
Warm-up Time	< 1 hour		

¹ Please contact factory for other energy and pulse duration level

² 790 nm +/- 10 nm for 100 fs pulse duration. Other central wavelengths, please contact factory

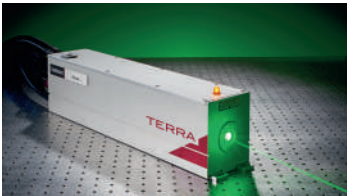
³ Factory-set, must be specified when ordered and will be optimized prior to shipment

⁴ Over 2000 pulses

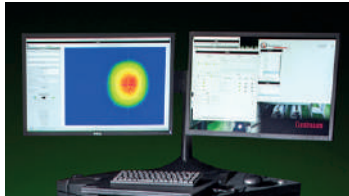
⁵ Over 8 hours under stable environmental conditions

⁶ Pre-pulse, regenerative amplifier replicas

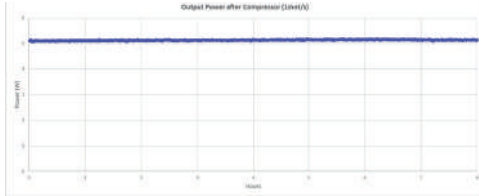
⁷ Measured with third order cross-correlator (SEQUOIA)



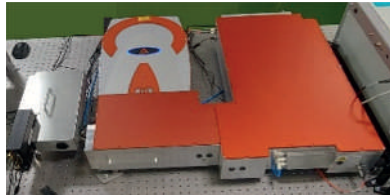
Terra DPSS Nd:YLF pump laser



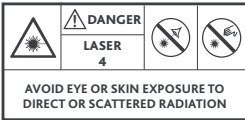
User friendly laser control software



High power stability



OPCPA Seeder



Options

- Carrier envelope phase (CEP) with OPCPA Seeder
- Down to 20 fs pulse duration
- External synchronization
- User friendly laser control software

Accessories

- Energy attenuator
- Active beam pointing control
- SHG, THG, FHG harmonic generators

ARCO X 10 Hz high energy

Specifications

Repetition Rate ¹	10 Hz			5 Hz / 10 Hz
Energy Per Pulse ²	25 mJ	500 mJ	1 J	> 2.7 J
Pulse Width (fwhm) ³	< 100 fs or < 35 fs or < 20 fs			
Central Wavelength (nm) ⁴	800 ± 10			
Peak Power (max)	1.25 TW	25 TW	50 TW	120 TW
Pulse To Pulse Energy Stability (RMS) ⁵	≤ 1,5 %			
Power Stability (RMS) ⁶	≤ 2 %			
Nanosecond Contrast ⁷	5.10 ⁻⁴			
Picosecond Contrast ⁸	10 ⁻⁵ @ < -5 ps, 10 ⁻⁶ @ < -10 ps, 5.10 ⁻⁷ @ < -50 ps			
Beam Quality	M ² ≤ 1.5		Strehl ratio > 0,85 ⁹	
Pointing Stability (RMS) ¹⁰	≤ 10 μrad			
Polarization	Linear horizontal			
Warm-up Time	< 1 hour			

¹ Please contact factory for specifications at other repetition rates

² Please contact factory for specifications at other energy level

³ Factory-set, must be specified when ordered and will be optimized prior to shipment.
Please contact factory for specifications at other pulse duration

⁴ 790 nm +/- 10 nm for 100 fs pulse duration.

Other central wavelengths, please contact factory

⁵ Over 2000 consecutive pulses

⁶ Over 8 hours under stable environmental conditions

⁷ Pre-pulse, regenerative amplifier replicas

⁸ Measured with third order cross-correlator (SEQUOIA)

⁹ With deformable mirror option

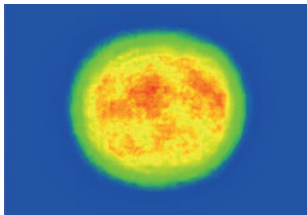
¹⁰ Over 2000 consecutive pulses

Options

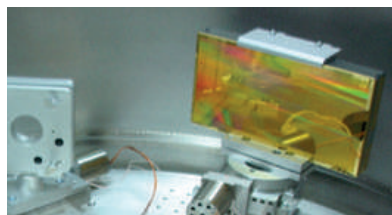
- Vacuum compatible compressor
- Down to 20 fs pulse durations
- External synchronization
- Laser 4.0 HE system control software
- EPICS / TANGO gateway

Accessories

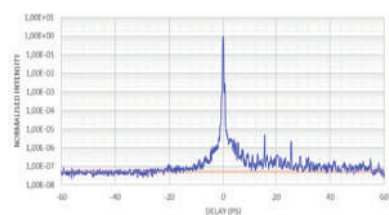
- Energy attenuator
- Active beam pointing control
- Isolation of experimental reflected beam



High quality beam profile (500 mJ)



Vacuum compressor for high energy



High picosecond contrast



Arco X 120 TW



Specifications

ARCO Hybrid Dual 1 kHz and 10 Hz amplifier

Repetition Rate ¹	10 Hz & 1 kHz		
Energy Per Pulse ²	5 mJ @ 1 kHz & 25 mJ @ 10 Hz	5 mJ @ 1 kHz & 500 mJ @ 10 Hz	10 mJ @ 1 kHz & 500 mJ @ 10 Hz
Pulse Width (fwhm) ³	< 100 fs or < 35 fs		
Central Wavelength (nm) ⁴	800 ± 10		
Energy Stability (RMS) ⁵	0.7 % @ 1 kHz & 1.2 % @ 10 Hz	0.7 % @ 1 kHz & 1.5 % @ 10 Hz	0.7 % @ 1 kHz & 1.5 % @ 10 Hz
Power Stability (RMS) ⁶	≤ 2 %		
Nanosecond Contrast ⁷	< 5.10 ⁻⁴ @ 1 kHz & < 1.10 ⁻⁶ @ 10 Hz		
Picosecond Contrast ⁸	10 ⁻⁵ @ < -5 ps, 10 ⁻⁶ @ < -10 ps, 5.10 ⁻⁷ @ < -50 ps		
Beam Quality M ²	≤ 1.5		
Pointing Stability (RMS) ⁹	≤ 10 µrad		
Polarization	Linear horizontal		
Warm-up Time	< 1 hour		

¹ 1 kHz - 10 Hz when 10 Hz output is activated. Please contact factory for specifications at other repetition rates
² Please contact factory for specifications at other energy level
³ Factory-set, must be specified when ordered and will be optimized prior to shipment
⁴ 790 nm +/- 10 nm for 100 fs pulse duration. Other central wavelengths, please contact factory

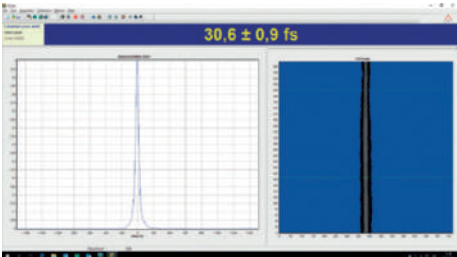
⁵ Over 2000 pulses
⁶ Over 8 hours under stable environmental conditions
⁷ Pre-pulse, regenerative amplifier replicas
⁸ Measured with third order cross-correlator (SEQUOIA)
⁹ Over 2000 consecutive pulses

Options

- Two independent compressed beams
- Down to 20 fs pulse durations
- Simultaneous 1 kHz & 10 Hz output
- Laser 4.0 HE system control software
- Vacuum compatible compressor

Accessories

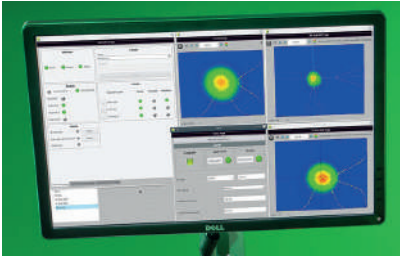
- Energy attenuator
- Active beam pointing control



Pulse duration < 35 fs



Vacuum compressor for high energy



Laser control software with beam profile monitoring for each amplifier and pump

