

Dragon/RedDragon™ Series

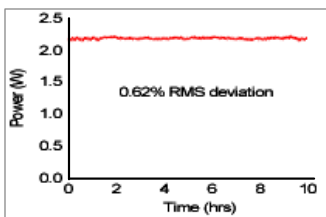
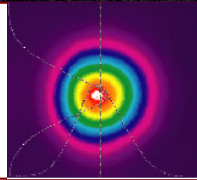
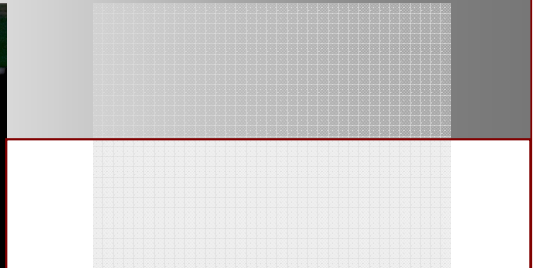
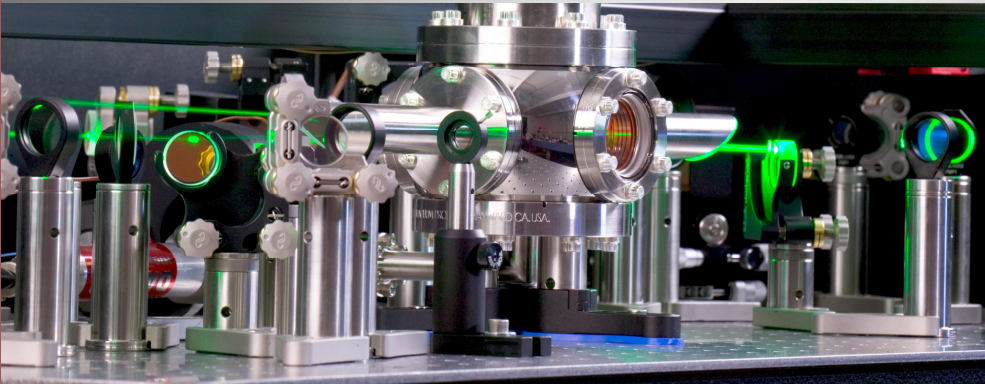
Ti:sapphire ultrafast multi-pass amplifiers

High performance ultrashort pulse amplifiers with CEP options

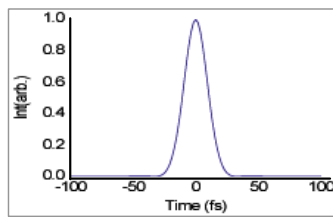
Unmatched performance 1-50 W, 1-20 kHz, 1-20 mJ, <25 fs

Highest power commercially-available, CEP-stabilized amplifiers

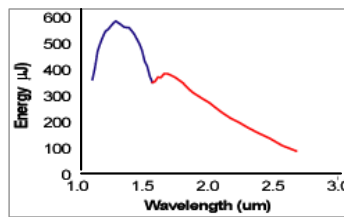
Robust CEP architecture, proven in leading laboratories worldwide



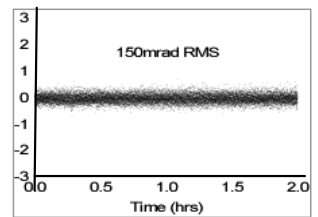
10 hrs at 1 kHz



27 fs at 4 kHz 2 mJ



IR OPA



Stability

*High Harmonic Generation • MIR/LIR/DUV/VUV Generation •
Biomedical • Spectroscopy & Imaging • Pump-probe Experiments*

	Dragon	Dragon HE	RedDragon	RedDragon TW
Number of Amplification Stages:	One Stage	One Stage	Two Stage	Three Stage
Repetition Rate:	0.5kHz to 20kHz	1kHz to 3kHz	1kHz to 20kHz	1Hz to 20Hz
Max Energy/Power at 10Hz:	-	-	-	1J
Max Energy/Power at 1kHz:	3mJ / 3W	5mJ / 5W	20mJ / 20W	-
Max Energy/Power at 3kHz:	3mJ / 9W	2mJ / 6W	10mJ / 30W	-
Max Energy/Power at 5kHz:	1.5mJ / 7.5W	-	10mJ / 50W	-
Max Energy/Power at 10kHz:	1mJ / 10W	-	3mJ / 30W	-
Max Energy/Power at 20kHz:	0.25mJ / 5W	-	1mJ / 20W	-
Pulse Duration:	<25fs to 100fs ¹	<40fs	<30fs, <25fs	<30fs, <25fs
Beam Quality: ²	$M^2 < 1.5$	$M^2 < 1.5$	$M^2 < 1.5$	$M^2 < 1.5$
ASE Intensity Contrast:	>10,000,000:1	>10,000,000:1	>10,000,000:1	>10,000,000:1
Pre-pulse contrast on ns scale: ³	>1,000:1	>1,000:1	>1,000:1	>1,000:1
Post-pulse contrast on ns scale: ⁴	>100:1	>100:1	>100:1	>100:1
Contrast on sub-ps scale (at ~500fs):	>1,000:1	>1,000:1	>1,000:1	>1,000:1
Contrast on sub-ps scale (at ~270fs):	>300:1	>300:1	>300:1	>300:1
Polarization:	Horizontal "p"	Horizontal "p"	Horizontal "p"	Horizontal "p"
Polarization purity:	>100:1	>100:1	>100:1	>100:1
Power instability: ⁵	<1% RMS	<1% RMS	<1% RMS	<1% RMS
Long term instability (8hrs): ⁵	<1% RMS	<1% RMS	<1% RMS	<1% RMS
Beam pointing instability: ⁵	<20 μ rad	<20 μ rad	<20 μ rad	<20 μ rad
Cryogenic coolant (each crystal): ⁶	Closed Loop HE Gas	Closed Loop HE Gas	Closed Loop HE Gas	-
Beam Diameter (1/e ²): ⁷	~1cm	~1cm	~2.2cm	~4cm
Amplifier Footprint (cm):	60 x 180	60 x 180	(60 x 180) + (60 x 120)	variable
Electronics Rack (cm, W x D x H):	54 x 63 x 64	54 x 63 x 64	54 x 89 x 130	variable
Cryo Compressor(s) (cm, W x D x H):	variable	59 x 54 x 66	variable	variable

Notes:

- ¹ Available as an option
- ² Lower M^2 upgrades available
- ³ >1,000,000:1 available as option
- ⁴ >100,000:1 available as option
- ⁵ Lower noise upgrade available
- ⁶ Approximately 50 Kelvin
- ⁷ Contact KMLabs if alternate diameter is required

Options:

- Sub-30fs, Sub-25fs, 100fs Pulse Duration
- Repetition Rate Stabilization
- Carrier Envelope Phase Stabilization
- Motorized Stretcher / Compressor Control
- Automated Power Attenuator
- Enhanced Nanosecond Contrast

