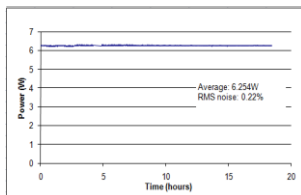
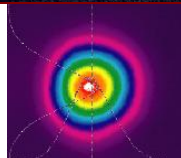
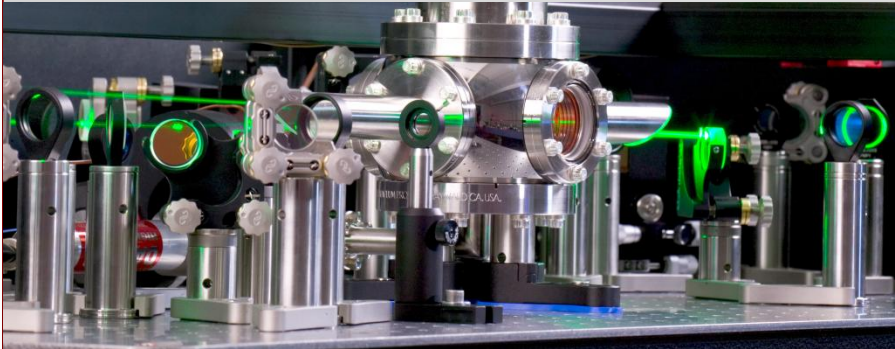


# Dragon/RedDragon™ Series

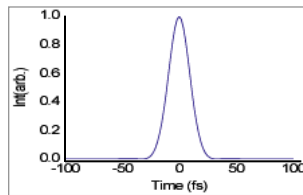
High performance Ti:sapphire ultrafast amplifiers

EUV, OPA, and CEP options

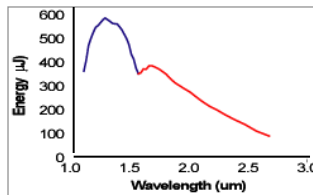
- Simple and rapid repetition rate control; 1-15kHz
- Unmatched performance to 20mJ and 50W, <25 fs
- Frequency conversion to mid-IR, visible, UV and EUV (to 13nm)
- Robust CEP architecture, proven in leading laboratories worldwide



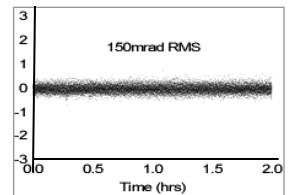
20 hrs at 3 kHz



27 fs at 4 kHz 2 mJ



IR OPA



CEP Stability

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

Kapteyn-Murnane Laboratories, Inc.™

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India: 91 22 27801176

Japan: 81 3(3686)4711

Singapore: (65) 6746 8068

South Korea: 042 823 5300

UK: 44 01295 672500

	Dragon		RedDragon		RedDragon
Number of Amplification Stages:	Single-Stage		Multi-Stage		Multi-Stage
Repetition Rate:	1kHz thru 5kHz	5kHz thru 15kHz	1kHz thru 5kHz	5kHz thru 15kHz	1kHz
Max Energy/Power at 1kHz:	2.6mJ		6.5 or 10.5mJ		20mJ
Max Energy/Power at 3kHz:	1.6mJ		4.2 or 6.8mJ		
Max Energy/Power at 5kHz:	Attainable by simple Customer alignment	1.5mJ	Attainable by simple Customer alignment	3.7 or 5.9mJ	
Max Energy/Power at 10kHz:		1mJ		2.6 or 4.2mJ	
Max Energy/Power at 15kHz:		500uJ		Attainable by simple Customer alignment	
Pulse Duration:	<25fs	<25fs	<25fs	<25fs	<25fs
Beam Quality: <sup>1</sup>	$M^2 < 1.5$	$M^2 < 1.5$	$M^2 < 1.5$	$M^2 < 1.5$	$M^2 < 1.5$
Pre-pulse contrast on ns scale: <sup>2</sup>	>1,000:1	>1,000:1	>1,000:1	>1,000:1	>1,000:1
Post-pulse contrast on ns scale: <sup>2</sup>	>100:1	>100:1	>100:1	>100:1	>100:1
Polarization:	Horizontal "p"	Horizontal "p"	Horizontal "p"	Horizontal "p"	Horizontal "p"
Polarization purity:	>100:1	>100:1	>100:1	>100:1	>100:1
Power instability: <sup>3</sup>	<1% RMS	<1% RMS	<1% RMS	<1% RMS	<1% RMS
Long term instability (8hrs): <sup>3</sup>	<1% RMS	<1% RMS	<1% RMS	<1% RMS	<1% RMS
Beam pointing instability: <sup>3</sup>	<20 $\mu$ rad	<20 $\mu$ rad	<20 $\mu$ rad	<20 $\mu$ rad	<20 $\mu$ rad
Amplifier Footprint (cm):	60 x 180	60 x 180	60 x 180	60 x 180	60 x 180) + (60 x 120)
Electronics Rack (cm, W x D x H):	54 x 63 x 64	54 x 63 x 64	54 x 63 x 64	54 x 63 x 64	54 x 89 x 130

<sup>1</sup> Lower  $M^2$  upgrades available  
<sup>2</sup> Higher Contrast options available.  
<sup>3</sup> Lower noise upgrade available.

## Options:

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



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