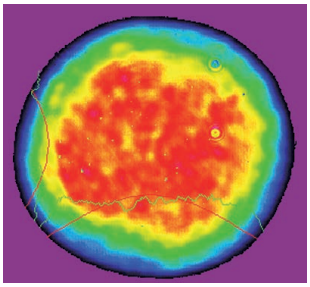
CFR

Laser solutions by **LUMIBIRD**

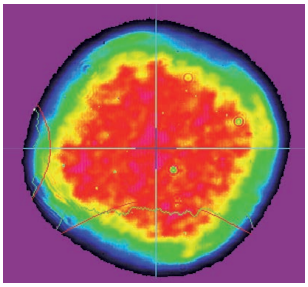
Compact Folded Resonator Pulsed Nd:YAG laser

MAIN FEATURES

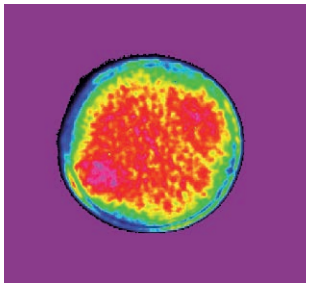
- 1064, 532, 355, 266 nm AND 1.57 µm AVAILABLE
- ALIGNMENT GUARANTEED
- QUICK UMBILICAL DISCONNECTS
- COMPACT AND PORTABLE
- GAUSSIAN OR MULTIMODE RESONATORS
- 50 MILLION SHOTS LAMP LIFETIME GUARANTEED
- BUILT TO WITHSTAND HARSH ENVIRONMENTS



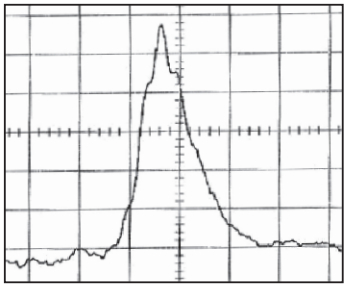
Beam profile in near field
@ 1064 nm, stable resonator



Beam profile in near field
@ 532 nm, stable resonator



Beam profile in near field
@ 355 nm, stable resonator



Temporal profile
@ 1064 nm, 20Hz

DIMENSIONS

Laser head 3.6kg (8lbs)
- A 323 mm [12.7"]
- B 94 mm [3.7"]
- C 84 mm [3.3"]

ICE 450 19" rack 14kg (31lbs)
- A 483 mm [19"]
- B 508 mm [20"]
- C 133 mm [5.25"]

ICE 450 14kg (31lbs)
- A 435 mm [17.2"]
- B 360 mm [14.2"]
- C 133 mm [5.25"]

ICE : Integrated Cooling and Electronics

Others dimensions available on:
www.quantel-laser.com

CFR

Quantel laser BY LUMIBIRD

TOUGH, RUGGED, RELIABLE. SIMPLY EASY TO USE.

		CFR 200							CFR 300				CFR 400			
RESONATOR[2]		TEM 00[1]	Stable			GRM			Stable		GRM		Stable		GRM	
Repetition rate (Hz)		To 100	To 10	To 20	To 30	10	20	30	To 10	To 20	10	20	To 10	To 20	10	20
Energy per pulse (mJ)	1064 nm	10	200			200		180	300		270		400		330	
	532 nm	6	130			130							230		200***	
	355 nm	2	70		50	70	60	45					90		90	80
	266 nm*	1	50		30	50	50	20								
	1.57 ¸m**				35								70	65		
Energy stability (%)[3]	1064 nm	<3			<2	<2		<2	<2.5	<2.5	<2	<2	<2			
	532 nm	<4	<2.5		<2.5	<2.5		<2.5					<2.5			
	355 nm	<5	<2		<3	<2		<3					<2			
	266 nm*	<5	<3		<3	<3		<3								
	1.57 ¸m**				<5								<5			
Pulse duration (ns)[4]	1064 nm	<15	<15		<15	<12		<13	<13	<13	<12	<12	<12		<13	
	532 nm	<16	<12		<12	<11		<12					<10		<12	
	355 nm	<15	<13		<12	<11		<12					<10		<11	
	266 nm*	<15	<12		<12	<12		<12								
	1.57 ¸m**				<16								<13			
Beam divergence (mrad)[5]	1064 nm	<2	<4		<4	<1.5			<5		<2		<4.5		<1.5	
	532 nm	<1.5	<4		<4	<1.5							<4		<1.5	
	355 nm	<1	<3.5		<3	<1.5							<3.5		<1.5	
	266 nm*	<1	<3.5		<3.5	<1.5										
	1.57 ¸m**				<12								<12			
Beam diameter (mm)	All	<1.5	<6.35			<6.35			<6.35				<7			
Pointing stabity (¸rad)[6]	All	100														
Jitter (+/-ns WRT Q-switch)[7]	All	<1							<2				<1			
Q-Switch delay (s)[8]	All	2														

* Crystals used for 266 nm generation exhibit self-heating due to light absorption and the crystal temperature is therefore dependent on the average laser power.
The output energy of a 266 nm laser is strongly dependent on the repetition rate and the specified pulse energy will only be provided within a limited range above or below the optimum repetition rate.
** Other wavelength upon request. *** Beam diameter of CFR400 GRM 532 nm < 12 mm.

[1] TEM00 is delivered only with the smaller diameter rod. Energies are engineering values. [2] Stable systems may operate over a wide range of repetition frequencies; GRM lasers may not have such flexibility. [3] Variation from mean for 99% of shots (RMS). [4] FWHM. [5] Full angle, 99% of shots. [6] Angle containing 86.5% Energy. Other methods can predict lower values for GRM systems
[7] Measured from Q-Switch Sync. Output. [8] Disables Q-Switch until after resonator has stabilized.

RESONATOR	CFR / ICE450
CONFIGURATION	
1064 nm	Linear
532 nm	Vertical
355 nm	Vertical
266 nm	Vertical
1.57 µm	
SPECTRAL PURITY (%) [1]	
532 nm	> 97
355 nm	> 90
266 nm	> 85
HIGH SPECTRAL PURITY (%) [2]	
532 nm	> 99.5
355 nm	> 99.5
266 nm	> 99
ENERGY DRIFT OVER 8 HOURS (%)[3]	< 10
OPERATIONAL [4] TEMPERATURE RANGE	10°C to 40°C
STORAGE TEMPERATURE RANGE	5°C to 70°C
FLASHLAMPS LIFETIME	> 50 million shots
MAX. ALTITUDE	2000 m
SERVICE REQUIREMENT	100 – 240 V 10 A 50 – 60 Hz Single phase
CABLE LENGTH	3 m (other lengths available upon request)

OPTIONS

- Wavelength separation packages: two or three apertures on request (WS2 or WS3), high spectral purity (WSP).
- Motorized Variable Attenuator (MTA) for IR (installed in the laser head). Specified 1064 nm energy will be decreased by as much as 20 %. Manual (MNA) version on request.
- ICE 450 19" rack.
- Energy may be reduced when using cables exceeding 10'.

Note on Beam Divergence:
Quantel pioneered beam measurement software and measures divergence as an angle containing energy.
For GRM systems, this returns a figure which is larger than that given using alternative criteria.

[1] Optional dual dichroic (WS2/WS3)
[2] Optional quad dichroics (WSP)
[3] Specifications applying to all 1064 nm laser head systems
[4] For IR laser head only.
Temperature performance available upon request for higher harmonics.

For more detailed technical drawings, please visit www.quantel-laser.com