

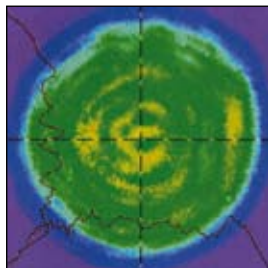
# Brilliant



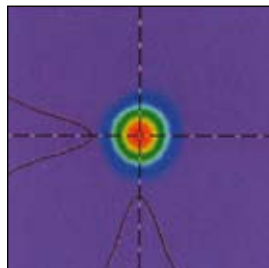
## Compact Q-Switched Nd : YAG oscillator with super gaussian resonator

**Beam diameter : 6mm - 1 flashlamp - air/water heat exchanger - interchangeable harmonic generators**

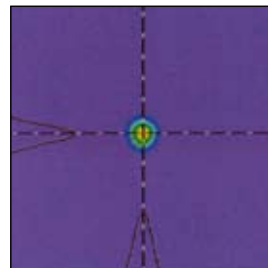
Beam profile in near field  
@ 1064 nm, 10 Hz



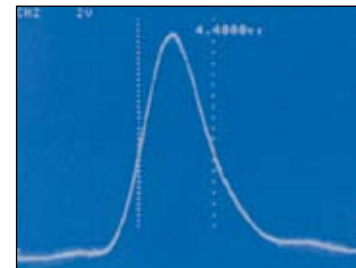
Beam profile in far field  
@ 1064 nm, 10 Hz



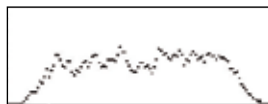
Beam profile in far field  
@ 532 nm, 10 Hz



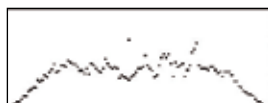
Temporal profile @ 1064 nm, 10 Hz



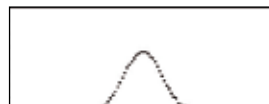
Horizontal Cursor Profile



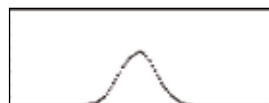
Vertical Cursor Profile



Horizontal Cursor Profile



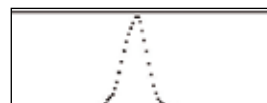
Vertical Cursor Profile



Horizontal Cursor Profile



Vertical Cursor Profile



### Optical laser head :

(H x L x W)

5 kg

(11.02 lb)

136 x 469 x 80

(5.35 x 18.46 x 3.15)

### Power supply and cooling group cabinet :

(H x L x W)

55 kg

(121 lb)

585 x 592 x 286

(23.03 x 23.3 x 11.26)

### Harmonic generation module including separation package (each) :

(H x L x W)

2,1 kg

(4.63 lb)

118 x 158 x 78

(4.65 x 6.2 x 3.07)

### Remote control (foot print)

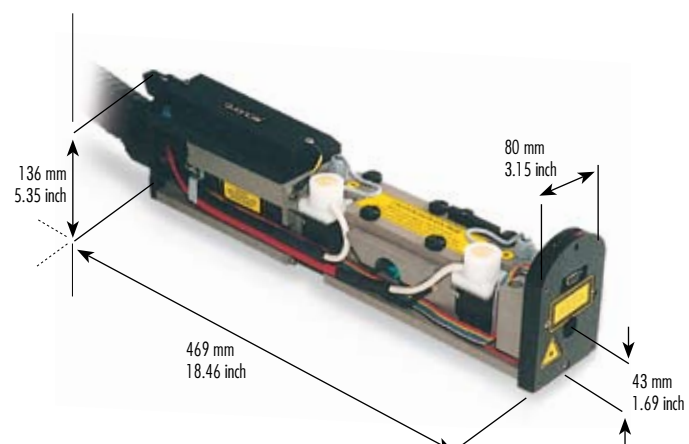
195 x 100

(7.68 x 3.94)

All dimensions are in mm (inch).



**External synchronization flexibility :** flashlamp external control through TTL signal or RS232 interface ; Q-Switch external control through TTL signals, RS232 interface or remote box. **Reduced warm up-time :** heating element in coolant reservoir.

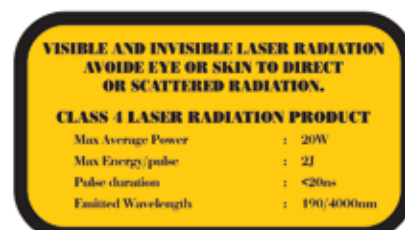


# Brilliant Specifications

| Repetition rate (Hz)                     |         | 10       | 20       | 50        |                                                                                        |
|------------------------------------------|---------|----------|----------|-----------|----------------------------------------------------------------------------------------|
| Energy per pulse (mJ)                    | 1064 nm | 360      | 350      | 150       | Measured with a calibrated wattmeter                                                   |
|                                          | 532 nm  | 180      | 160      | 65        |                                                                                        |
|                                          | 355 nm  | 65/100*  | 60/70*   | 20        | *High energy UV option                                                                 |
|                                          | 266 nm  | 40       | 30       | 12        |                                                                                        |
|                                          | 213 nm  | 8        | 6        | 2         |                                                                                        |
| Energy stability - shot to shot (%)      | 1064 nm | ±2 (0.6) | ±2 (0.6) | ±3 (1)    | Peak to peak, 100% of the shots (RMS)                                                  |
|                                          | 532 nm  | ±4 (1.3) | ±4 (1.3) | ±7 (2.3)  |                                                                                        |
|                                          | 355 nm  | ±6 (2)   | ±6 (2)   | ±9 (3)    |                                                                                        |
|                                          | 266 nm  | ±8 (2.6) | ±8 (2.6) | ±12 (4)   |                                                                                        |
|                                          | 213 nm  | ±12 (4)  | ±12 (4)  | ±16 (5.3) |                                                                                        |
| Power drift (%)                          | 1064 nm | ±3       | ±3       | ±3        | Over 8 hours, without readjustment of phase-matching, 18°C<T°<28°C (10Hz/20Hz)         |
|                                          | 532 nm  | ±3       | ±3       | ±3        | 18°C<T°<25°C (50Hz)                                                                    |
|                                          | 355 nm  | ±3       | ±3       | ±3        | W/W exchanger or chiller options available                                             |
|                                          | 266 nm  | ±6       | ±6       | ±6        |                                                                                        |
|                                          | 213 nm  | ±10      | ±10      | ±10       |                                                                                        |
| Pulse duration (ns)                      | 1064 nm | ≈5       | ≈5       | ≈6        | FWHM, fast photodiode and 1GHz scope                                                   |
|                                          | 532 nm  | ≈4       | ≈4       | ≈5        |                                                                                        |
|                                          | 355 nm  | ≈4       | ≈4       | ≈5        |                                                                                        |
|                                          | 266 nm  | ≈4       | ≈4       | ≈5        |                                                                                        |
|                                          | 213 nm  | ≈4       | ≈4       | ≈5        |                                                                                        |
| Linewidth (cm <sup>-1</sup> )            | 1064 nm | 0.7      | 0.7      | 0.7       | FWHM, measured by a grating spectrometer with a 0,045 cm <sup>-1</sup> resolution      |
|                                          | 532 nm  | 1.4      | 1.4      | 1.4       |                                                                                        |
| Jitter (ns)                              | 1064 nm | ±0.5     | ±0.5     | ±0.5      | With respect to Q-switch trigger, measured at half-width of 500 accumulated shots      |
| Pointing stability (μrad)                | 1064 nm | <50      | <75      | <75       | Measured by SPIRICON LBA-100, RMS, on 200 pulses at the focal plane of a 2m focus lens |
|                                          | 532 nm  | <50      | <75      | <75       |                                                                                        |
|                                          | 355 nm  | <50      | <75      | <75       |                                                                                        |
|                                          | 266 nm  | <50      | <75      | <75       |                                                                                        |
| Divergence (mrad)                        | 1064 nm | 0.5      | 0.5      | 0.7       | Full angle, at 1/e <sup>2</sup> of the peak, 85 % of total energy                      |
| Polarization ratio (%)                   | 1064 nm | >90      | >90      | >80       | Horizontal polarization                                                                |
| Beam diameter (mm)                       | 1064 nm | 6        | 6        | 6         | At the output of the laser                                                             |
| Focusability (times Diffraction Limit)   | 1064 nm | <2       | <2       | <3        | At 1/e <sup>2</sup> of the peak, by SPIRICON LBA-100                                   |
| <b>Spatial profile (fit to gaussian)</b> |         |          |          |           |                                                                                        |
| Near field                               | 1064 nm | 0.70     | 0.70     | 0.70      | At 1m from the laser output                                                            |
| Far field                                | 1064 nm | 0.95     | 0.95     | 0.90      | At focal plane of a 2m focus lens<br>Least square fit to gaussian (perfect fit=1)      |

Double pulse option is available. Contact us for more information.

**Service requirement** Power : 100-240V, 10A, 50/60Hz  
Cable length : 3 m (10 feet)



2 bis, Avenue du Pacifique - ZA de courtaboeuf - BP 23 - 91941 Les Ulis Cedex - France  
Tel : + 33 (0)1 69 29 17 00 - Fax : + 33 (0)1 69 29 17 29 - email : quantel@quantel.fr - www.quantel-laser.com  
Quantel - USA : 601 Haggerty Lane - Bozeman, MT 59715 - 2001 - USA - Tel : + 1 406 586 0131 - fax : + 1 406 586 2924