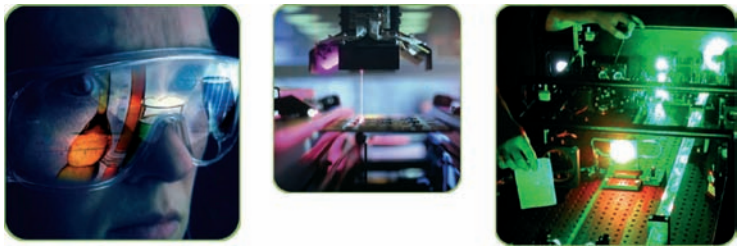
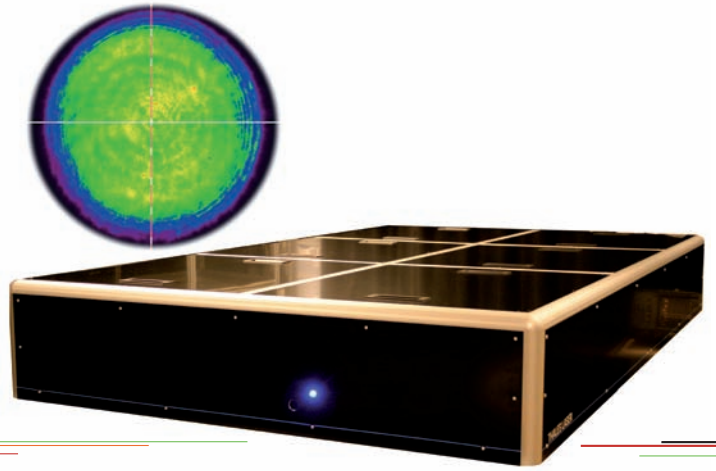
Gaïa-R

FLASHLAMP-PUMPED ND:YAG SERIES



FEATURES
- 14 J @ 532 NM (HP VERSION)
- 24 J @ 1064 NM (HP VERSION)
- UP TO 5 Hz REPETITION RATE
- UNMATCHED BEAM PROFILE
- PULSE DURATION 8 NS - 1 or 2 BEAMS
- SUPERVISION SOFTWARE
- INTEGRATED ISEO TIMING GENERATOR
- SINGLE BOX COMPACT DESIGN
  1 X 2.5 M^2 FOOTPRINT

APPLICATIONS
- IDEAL PUMP FOR HIGH REPETITION RATE PETAWATT Ti:Sa LASERS
- LASER SHOT PEENING



14J @ 1 Hz @ 532 nm
Top Hat smooth profile !

GAÏA-R is the new laser from THALES which pushes forward the limits of output energy reachable at high repetition rates. This Nd:YAG laser delivers indeed more than 24 J at 1064 nm and 14 J at 532 nm with repetition rate up to 5 Hz.

GAÏA-R combines the best characteristics for laser shot peening: short pulse duration and high energy to offer high intensity pulses, very low modulations to have an uniform stress and a high repetition rate for a faster process. As an option, an isolator can be implemented in the 1064 nm version in order to protect the oscillator from damage risks.

GAÏA-R was also specially designed for high energy Ti:Sa amplifiers pumping and offers a unique solution for high repetition rate Petawatt systems.

It demonstrates a top-hat beam profile with very low peak-to-valley spatial modulations, reproducible beam profile, a very limited beam distortion along propagation and a short pulse duration to avoid prelasing in the Ti:Sa amplifiers and to limit ASE.

GAÏA-R can also be used for other applications like high power LIDAR or large area ablation.

Full supervision by software offers remote control of the laser emission, output energy. ISEO technology is also accessible through the supervision software for synchronization and laser safety controls.

THALES

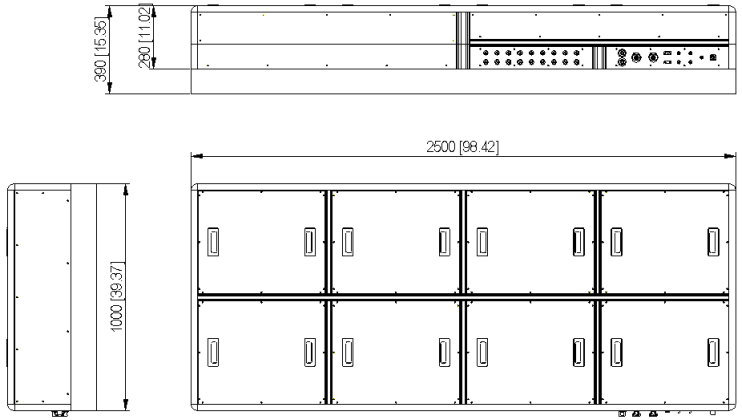
Output Specifications	Gaïa-R			Gaïa-R HP	
Wavelength (nm)	1064	532	355	1064	532
Repetition rate (Hz)	1Hz / 5Hz	1Hz / 5Hz	1Hz	1Hz / 5Hz	1Hz / 5Hz
Energy per pulse (J) (1)	12J / 11J	7J / 6J	3J	24J / 22J	14J / 12J
Pulse duration (ns)	8-10	8	6	1 pulse @ 8-10ns 2 pulses of 8-10ns each with adjustable delay	2 pulses of 8-10ns each with adjustable delay (delay min ~12ns)
Pulse to pulse ernergy stability (% rms)	< 1.0	< 1.2	< 2.5	<0.7	< 0.9
Polarization	Horizontal	Vertical	Vertical	50% Vertical and 50% Horizontal	Vertical
Typical Beam diameter (mm)	23	23	23	23	23
Beam profile	Top Hat	Top Hat	Top Hat	Top Hat	Top Hat
Divergence Low M²/High M²	<150µrad / <3.5mrad	<150µrad / <3.5mrad	<150µrad / <3.5mrad	<150µrad / <3.5mrad	<150µrad / <3.5mrad
Peak to peak Pointing stability (µrad)	< 60	< 60	< 60	< 60	< 60
Jitter (ns)	< ±1	< ±1	< ±1	< ±1	< ±1

(1) Seeded option available on request

Physical Characteristics

Power Supply (2 units)	Size (H x W x L)	64.6 x 22.0 x 30.7 in	164 x 56 x 78 cm
Cooling unit	Size (H x W x L)	14.6 x 17.5 x 28.7 in	37 x 44,5 x 73 cm

Dimensions are given in mm (in)



Utilities

Power requirements	Voltage	230 VAC ± 5%	208 VAC ± 5%
	Current	single phase	single phase
	Gaïa-R 1Hz	5 x 16A plugs	5 x 16A plugs
	Gaïa-R 5Hz	7 x 16A plugs	7 x 16A plugs
	Gaïa-R HP 1Hz	7 x 16A plugs	5 x 16A plugs
	Gaïa-R HP 5Hz	11 x 16A plugs	5 x 16A plugs
	Frequency	50 Hz	60 Hz
Water requirements	Flow	4 gal/min	15 l/min
	Static pressure	43.5 - 72 psi	3 - 5 bars
	Temperature	10 - 17 °C	
Software	Windows 95, 98, 2000, NT, XP		

Specifications are subject to change without notice - Last Update: August 2009

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