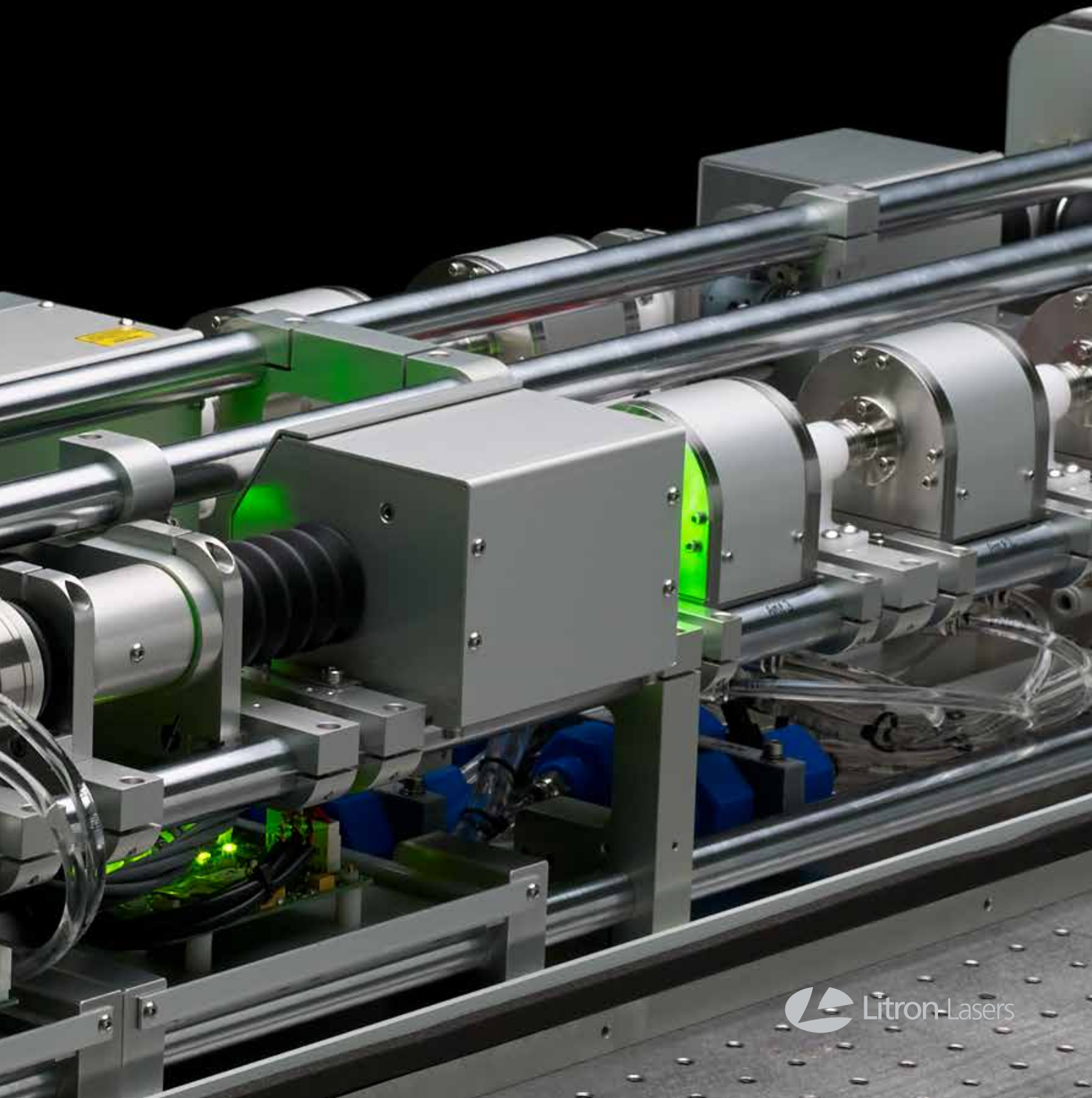




PULSED DIODE PUMPED SOLID STATE LASERS

2 0 1 9



Nano DPSS

Ultra-compact DPSS Q-switched pulsed Nd:YAG lasers

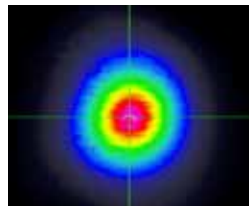


FEATURES

- Repetition rates up to 300Hz
- Fully modular harmonics
- Choice of resonator options
- Ultra high stability
- Diode life >4 billion pulses
- Field replaceable diodes
- Excellent beam quality
- Compact PSU
- Detachable, compact chiller
- Rated to IP65

APPLICATIONS

- Spectroscopy & LIBS
- PIV, LIF & ESPI
- LIDAR & remote sensing
- Laser flash photolysis
- Laser ultrasonics
- Microscopy
- Sample testing
- Ablation

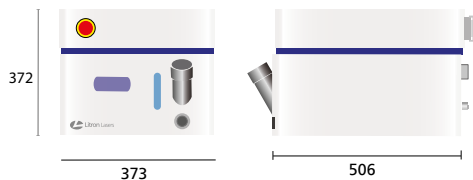


Near field beam profile at 100Hz

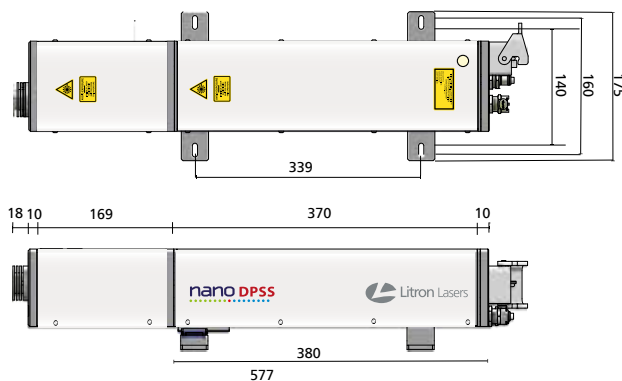
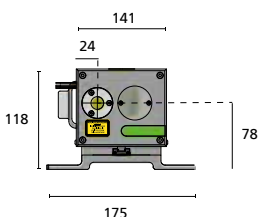
MECHANICAL DATA

All dimensions shown in mm

Free standing PSU and chiller



Laser Head



The **Nano DPSS** is a pulsed, fully diode pumped Q-switched Nd:YAG laser with output energies up to 150mJ and repetition rates of up to 300Hz. A fully sealed laser head and harmonics provide complete protection from external contamination.

All harmonics are automatically angle-tuned with high precision linear actuators, making Litron's unique mechanical angle-tuning much faster than traditional thermal tuning. This feature has the option of single, on-demand tuning or continuous automatic tracking of the crystals for guaranteed long-term stability. Additionally, harmonic generation crystals are thermally stabilised to better than 0.1°C.

TECHNICAL DATA

Model	Nano DPSS 80-100	Nano DPSS G 70-100	Nano DPSS 120-100
Type of Resonator	stable	super-Gaussian	stable
Repetition Rate (Hz)	1-300	100-200	1-300
Output Energy (mJ)			
1064nm	80	70	120
532nm	40	35	60
355nm	25	20	35
266nm	10	8	15
213nm ⁽¹⁾			
Pulse Stability (%RMS)			
1064nm	0.2	0.2	0.2
532nm	0.3	0.3	0.3
355nm	1.0	1.0	1.0
266nm	1.5	1.5	1.5
Pulse Length (ns) ⁽²⁾			
1064nm	8-10	8-10	8-10
532nm	6-8	6-8	6-8
355nm	5-7	5-7	5-7
266nm	5-7	5-7	5-7
Beam Parameter			
Beam Diameter (mm) ⁽³⁾	5	5	5
M ² @1064nm		≤2	
TEM ₀₀ @1064nm (mJ)	10	N/A	10
Pointing Stability (μrad) ⁽⁴⁾	<20	<20	<20
Timing Jitter (ns) ⁽⁵⁾	≤0.5	≤0.5	≤0.5
Polarisation	Linear	Linear	Linear
Diode Life (pulses)	>4x10 ⁹	>4x10 ⁹	>4x10 ⁹
Operation			
Control ⁽⁶⁾	RS232	RS232	RS232
Q-switch Trigger and Sync	TTL	TTL	TTL
Services			
Voltage (VAC) ⁽⁷⁾	220-250	220-250	220-250
Frequency (Hz)	50 or 60	50 or 60	50 or 60
Power	Single Phase	Single Phase	Single Phase
Ambient (°C) ⁽⁸⁾	5-35	5-35	5-35
External Cooling ⁽⁹⁾	Air	Air	Air

All specifications at repetition rate of 100Hz.

- (1) Contact Litron for more information.
- (2) FWHM – measured with a fast photodiode.
- (3) 100% beam diameter at laser exit port.
- (4) Half angle.
- (5) RMS with respect to Q-switch trigger input.
- (6) Full software suite and programming tools supplied.
- (7) 100-200VAC operation - contact Litron.
- (8) 0-80% non condensing atmosphere.
- (9) Standard air-cooled chiller or optional water-cooled chiller.

TRLi DPSS

Fully modular system designed for flexibility and enhanced performance

The **TRLi DPSS series** is based around Litron's birefringence compensating twin-rod resonator giving highly homogenous output beams. The laser resonator is housed in a body machined from solid aluminium to ensure high mechanical and optical integrity.

State-of-the-art diode pump modules and extremely low current-ripple electronics give rise to outputs with industry leading stabilities of better than 0.2% RMS at 1064nm over a six-hour period.

All accessories such as harmonics, beam expanding telescope or OPO are bolt-and-play and can be added and removed at will. The intelligent system controller automatically adapts to the pre-set configuration and allows seamless control in any application.



FEATURES

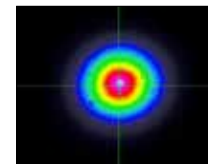
- **Choice of resonator options**
- **Ultra high stability**
- **Diode life >4 billion pulses**
- **Field replaceable diodes**
- **Smooth, homogenous beam profile**
- **Compact PSU**
- **Detachable, compact chiller**
- **RS232 control**

APPLICATIONS

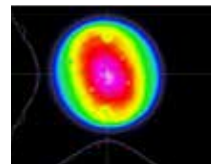
- **LIDAR**
- **Si wafer inspection**
- **LIBS & LIF**
- **Laser cleaning**
- **LCD repair**
- **Ti:Sa pumping**
- **Laser cleaning**
- **LIBS & LIF**

TECHNICAL DATA

Model	TRLi DPSS 170-100	TRLi DPSS 280-100	TRLi DPSS 130-200	TRLi DPSS 100-300
Repetition Rate (Hz)	100	100	200	300
Output Energy (mJ)				
1064nm	170	280	130	100
532nm	85	140	65	50
355nm	45	65	25	23
266nm	15	21	10	5
213nm ⁽¹⁾				
Pulse Stability (%RMS)				
1064nm	0.2	0.2	0.2	0.2
532nm	0.3	0.3	0.3	0.3
355nm	0.8	0.8	0.8	0.8
266nm	1.5	1.5	1.5	1.5
Pulse Length (ns) ^{(2)(#)}				
1064nm	8-10	8-10	9-11	9-11
532nm	7-9	7-9	9-11	9-11
355nm	6-9	6-9	8-10	8-10
266nm	6-9	6-9	8-10	8-10
Beam Parameter				
Beam Diameter (mm) ⁽³⁾	5	5	5	5
Beam Divergence (mrad) ^{(4)(#)}	0.9	0.9	0.9	0.9
M ² @ 1064nm ^(#)	≤8	≤8	≤8	≤8
Pointing Stability (μrad) ⁽⁵⁾	≤15	≤15	≤15	≤15
Timing Jitter (ns) ⁽⁶⁾	≤0.5	≤0.5	≤0.5	≤0.5
Polarisation	Linear	Linear	Linear	Linear
Diode Life (pulses)	>4x10 ⁹	>4x10 ⁹	>4x10 ⁹	>4x10 ⁹
Services				
Voltage (VAC)	220-250	220-250	220-250	220-250
Frequency (Hz)	50 or 60	50 or 60	50 or 60	50 or 60
Power	Single Phase	Single Phase	Single Phase	Single Phase
Ambient (°C) ⁽⁸⁾	5-35	5-35	5-35	5-35
External Cooling ⁽⁹⁾	Air	Air	Air	Air

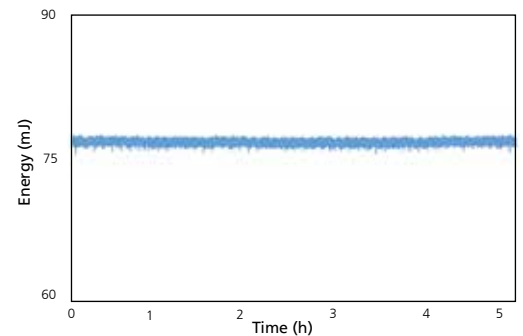


Far field beam profile



Near field beam profile

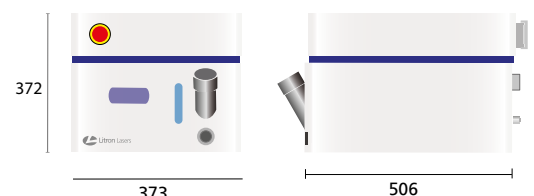
Energy stability at 532nm, 100Hz over 5 hours



MECHANICAL DATA

All dimensions shown in mm

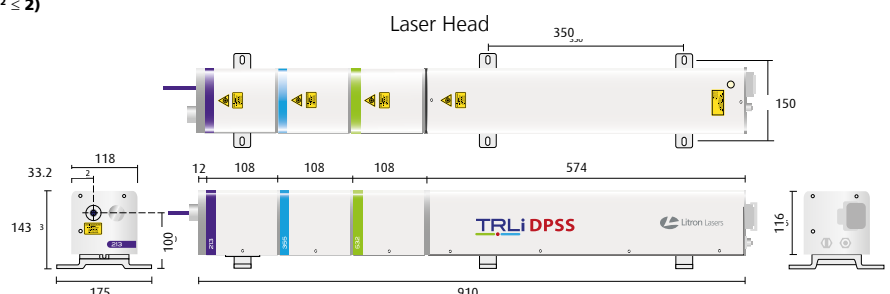
Free standing PSU and chiller



All specifications at maximum repetition rate unless otherwise stated.

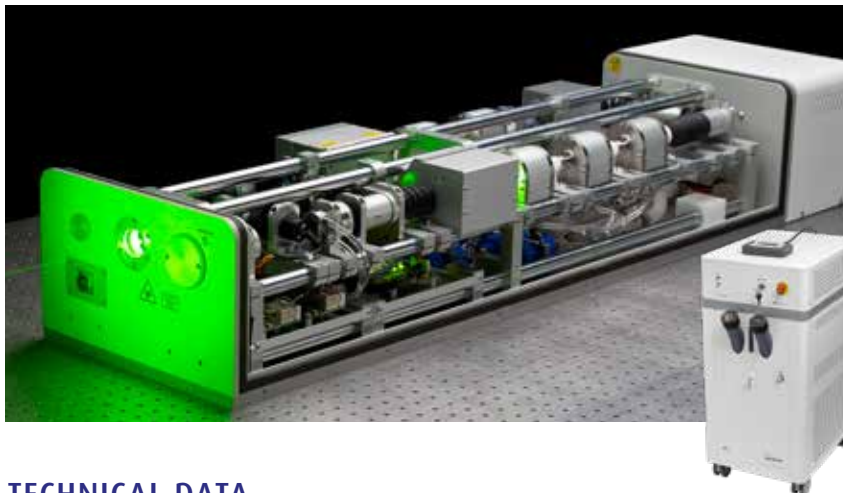
Low divergence super-Gaussian resonator option available ($M^2 \leq 2$)
Please contact Litron Lasers for more details.

- (1) Contact Litron for more information.
- (2) FWHM – measured with a fast photodiode.
- (3) 100% beam diameter at laser exit port.
- (4) Full angle at specified beam diameter.
- (5) Half angle.
- (6) RMS with respect to Q-switch trigger input.
- (7) Full software suite and programming tools supplied.
- (8) 0-80% non condensing atmosphere.
- (9) Standard air-cooled chiller or optional water-cooled chiller.



The Plasma Series

High Energy Pulsed DPSS Nd:YAG Lasers at up to 200Hz



The **Plasma series** lasers are pulsed diode pumped, Q-switched Nd:YAG lasers, which use the very latest in high efficiency fully diode pumped technology to replace traditional flashlamp pumping. The Plasma series DPSS lasers use Litron's sealed, mechanically robust diode pump module to ensure stable output, high reliability, easy diode replacement and long diode lifetime of more than 4 billion pulses. Litron's unique diode module design and diode drive electronics combined with the mechanically stable and robust optical rail systems deliver class leading pulse to pulse stability (0.2% RMS at 1064nm).

TECHNICAL DATA

Model	Plasma 450-100	Plasma 400-200	Plasma G 400-100	Plasma 1000-100
Repetition Rate (Hz)	100	200	100	100
Output Energy (mJ)				
1064nm	450	400	400	1000
532nm	225	200	200	500
355nm	100	90	100	200
266nm	45	35	45	90
213nm ⁽¹⁾				
Pulse Stability (%RMS)				
1064nm	0.2	0.2	0.2	0.2
532nm	0.3	0.3	0.3	0.3
355nm	1.0	1.0	1.0	1.0
266nm	1.5	1.5	1.5	1.5
Pulse Length (ns) ⁽²⁾				
1064nm	11-14	9-11	8-10	11-14
532nm	10-13	9-11	8-10	10-13
355nm	9-12	8-10	7-9	9-12
266nm	9-12	8-10	7-9	9-12
Beam Parameter				
Resonator	stable	stable	super-Gaussian	stable
Beam Diameter (mm) ⁽³⁾	6.5	5	6.5	6.5
Beam Divergence (mrad) ⁽⁴⁾	≤1	≤1	≤0.5	≤1
M ² @ 1064nm	≤8	≤8	≤2	≤8
Pointing Stability (μrad) ⁽⁵⁾	≤30	≤30	≤30	≤30
Timing Jitter (ns) ⁽⁶⁾	≤0.5	≤0.5	≤0.5	≤0.5
Polarisation	Linear	Linear	Linear	Linear
Diode Life (pulses)	>4x10 ⁹	>4x10 ⁹	>4x10 ⁹	>4x10 ⁹
Services				
Voltage (VAC)	220-250	220-250	220-250	220-250
Frequency (Hz)	50-60	50-60	50-60	50-60
Power	Single Phase	Single Phase	Single Phase	Single Phase
Ambient (°C) ⁽⁸⁾	5-35	5-35	5-35	5-35
External Cooling ⁽⁹⁾	Air	Air	Air	Air

FEATURES

- **Output energies up to 1J**
- **Repetition rates up to 200Hz**
- **Fully diode pumped lasers**
- **Super-Gaussian resonator M² ≤2**
- **Stable resonator M² ≤8**
- **Ultra high stability**
- **Diode life >4 billion pulses**
- **Homogenous beam profile**
- **Compact PSU**
- **Detachable chiller**
- **Field replaceable diodes**
- **RS232 control**

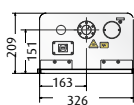
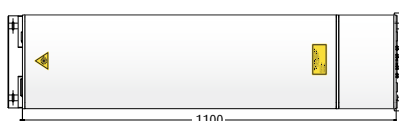
APPLICATIONS

- **LIDAR**
- **Semiconductor annealing**
- **Si wafer inspection**
- **Laser shock peening**
- **Laser lift-off**
- **LCD repair**
- **Ti:Sa pumping**
- **Laser cleaning**
- **LIBS & LIF**

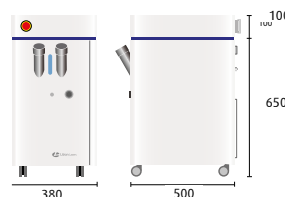
MECHANICAL DATA

All dimensions shown in mm

Laser Head



Free standing PSU and chiller



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All specifications at maximum repetition rate unless otherwise stated.

- (1) Contact Litron for more information.
- (2) FWHM – measured with a fast photodiode.
- (3) 100% beam diameter at laser exit port.
- (4) Full angle at specified beam diameter.
- (5) Full angle.
- (6) RMS with respect to Q-switch trigger input.
- (7) Full software suite and programming tools supplied.
- (8) 0-80% non-condensing atmosphere.
- (9) Standard air-cooled chiller or optional water-cooled chiller.



Our policy is to improve the design and specification of our products. The details given in this document are not to be regarded as binding.



www.litronlasers.com

光と人をつなぐ

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