

Tempest

HIGH ENERGY Nd:YAG LASER SYSTEMS



Tempest is a compact, pulsed Nd:YAG laser system delivering maximum performance in a compact, inexpensive platform. Designed with scientific applications in mind, the Tempest is easy to use and readily adaptable to specific requirements. Its proven resonator design is robust and provides superior beam pointing and energy stability with minimum beam divergence.

With four available output beam wavelengths and a wide range of repetition rates (with single-shot, burst and continuous modes), the Tempest provides a complete solution for many applications.

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Applications

- Laser ablation
- Micromachining
- Plasma Physics
- High energy spectroscopy
- Scientific research

Features

- Compact flashlamp pumped, Q-switched Nd:YAG laser system
- Pulse energy per unit volume is highest in the industry — from 100 to 300 mJ at 1064 nm.
- Beam divergence less than 1 mrad at 1064 nm.
- Repetition rates from 10 to 30 Hz.
- Wavelength availability: 1064, 532, 355, and 266nm.
- Optional optical attenuator makes it easy to control laser energy without changing the beam parameters.
- Compact head configuration minimizes optical bench space requirement and simplifies OEM package design.
- Controllable flashlamp voltage.
- Self-contained cooling system.
- Flexible operational controls with RS232 and remote control panel.
- Standard or 19" rack mount power supply.

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Products

		Tempest 10	Tempest 20	Tempest 30	Tempest 300
Repetition Rate (Hz)		10	20	30	10
Energy ¹ (mJ)	1064 nm	200	200	180	300
	532 nm	100	100	90	180
	355 nm	50	50	40	75
	266 nm	30	30	20	40
Energy Stability ² (%)	1064 nm	2	2	2.5	2
	532 nm	3.5	3.5	4	4
	355 nm	8	8	9	9
	266 nm	9	9	10	10
Pulse Width ³ (ns)		3-5	3-5	3-5	3-5
Beam Diameter (mm)		5	5	5	6
Divergence ⁴ (mrad)		< 1	< 1	< 1	< 1
Beam Pointing Stability (μrad)		< 100	< 200	< 250	< 200
IR Beam Quality ⁵ (TDL)		1.5	1.5	2	1.5
Jitter (±ns) ⁶		0.5	0.5	0.5	0.5

Notes:

- 1. Optical losses due to optional attenuator will reduce maximum energy by 10%
- 2. Pulse-to-pulse for 98% of shots after 30 minute warm up
- 3. Full width half maximum

- 4. Full angle for 86% of the energy, at 1/e2 point
- 5. Times diffraction limited, at 1/e2 point
- 6. From Q-Switch synch out pulse to light pulse for 98% of 1,000 shots

Nominal Dimensions⁷

	LASER HEAD				
	Tempest 10, 20, & 30	Tempest 300	Baseplate	Power Supply	Control panel
Length	13.4" / 34.0 cm ⁸	15.0" / 38.0 cm ⁸	7.0" / 17.8 cm	20.5" / 52.1 cm ⁸	6.3" / 16.0 cm
Width	7.0" / 17.8 cm	7.0" / 17.8 cm	9.0" / 22.9 cm	8.7" / 22.1 cm	8.2" / 20.8 cm
Height	3.5" / 8.9 cm	3.5" / 8.9 cm	0.5" / 1.3 cm	15.7" / 39.9 cm	3.5" / 8.9 cm
Weight	12 lbs / 5.5 kg	15 lbs / 6.8 kg	5 lbs / 2.3 kg	55 lbs / 25 kg	5 lbs / 2.3 kg
Length Umbilical	8 ft / 2.4 m	8 ft / 2.4 m	—	—	10 ft / 3.0 m

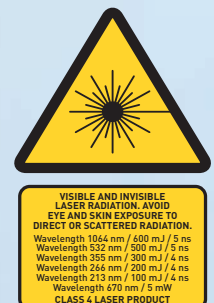
- Notes: 7. Nominal values only; contact NWR representative for full specifications
- 8. Add 5.0"/13.0 cm for umbilical bend radius

Operating Requirements

Temperature	70° ± 10° F (21° ± 5° C)
Relative Humidity	20 to 80% non-condensing
Voltage	95—120 V or 200—250 VAC, 50/60 Hz
Power Consumption	< 800 watts

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