



High-Energy Q-Switched Nd:YAG Pulsed Laser

Beamtech SGR (Super-Gaussian Resonator) series Q-switched Nd:YAG lasers combine VRM (variable reflectivity mirror) and unstable resonator design creating a cavity with large TEM₀₀ mode volume for high efficiency of excitation and energy extraction. You can specify "flat-top-hat" with uniform energy distribution or "VRM Gaussian" profiles.

The Beamtech close-coupled diffuse pump chamber delivers uniform pumping to the laser rod for optimum lasing excitation efficiency and allows for higher stored energy by eliminating parasitic oscillations within the pump chamber. The pump chamber uses chemically inert materials to withstand high pumping energy and absorb unwanted UV and IR radiation emitted by the flashlamps. One or more amplifiers can be added to the oscillator for higher energy output. With scientific or industrial grade models available, the SGR series will fit right in laser shock peening, LiDAR, plasma excitation, PLD, tokamak, laser flyer, laser-matter interaction, and as pump sources for dye lasers, OPO, and ultrafast Ti femtosecond lasers.

In terms of design, the SGR series features modular and engineered design to ensure product reliability and stability. The power control cabinet is equipped with comprehensive external trigger connections and communication interfaces, facilitating synchronized system trigger control and remote control for users. The SGR series places particular emphasis on safety and electromagnetic compatibility design, featuring protective shutters, built-in interlocks, flow switches, emergency stop switches, and enclosure protection.

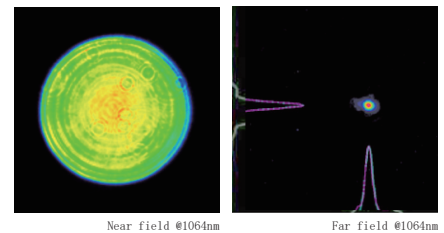


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Features

- Pulse energy: 400mJ - 6J@1064nm
Multiple harmonics available
- (532/355/266nm optional)
- Repetition rate up to 50 Hz
- Single longitudinal mode seeding for narrow linewidth output available
- Higher energy (>6J) available
- Super-Gaussian beam profile
- Super-Gaussian beam profile
Quick lamp replacement design without optical path adjustment
- Engineering technology ensures long-term stable operation



Applications

- LIDAR
- CARS
- Laser Shock Peening (LSP)
- Pumping OPO
- Pumping Dye Lasers
- Pumping Ti:Sapphire Femtosecond Laser
- Pulsed Laser Deposition (PLD)
- Laser Cleaning and Ablation
- Tokamak
- Laser-produced Plasma
- Laser Trigger Switch (LTS)
- Photo Chemistry
- Laser Illuminating
- Nonlinear Optics
- Laser Ion Source (LIS)
- Laser Driving Flyer



Specifications

Models¹		SGR-10	SGR-20				SGR-30		SGR-40		SGR-50		SGR-60	
Repetition Rate		10	10	20	30	50	5	10	5	10	5	10	5	10
Energy (mJ)	1064nm	1000	2000	2000	2000	1500	3000	3000	4000	4000	5000	5000	6000	6000
	532nm	500	1000	1000	1000	750	1500	1500	2000	2000	2500	2500	3000	3000
	355nm	250	500	400	400	300	750	750	1000	1000	1250	1250	1500	1500
	266nm	90	180	100	90	50	250	200	350	300	400	350	500	400
Energy Stability²(RMS)	1064nm	< 1%												
	532nm	< 2%												
	355nm	< 3%												
	266nm	< 4%												
Power Drift³	1064nm	< 3%												
	532nm	< 5%												
	355nm	< 6%												
	266nm	< 8%												
Pulse Width⁴		1064nm: 8-10ns; Other wavelengths: 7-10ns												
Spatial Profile⁵	Near Field	> 70%												
	Far Field	> 90%												
Beam Diameter⁶(mm)		10	12	12	12	12	15	15	15	15	20	20	20	20
Divergence⁷		≤0.5mrad												
Pointing Stability		< 50μrad												
Jitter⁸(RMS)		< 1ns												
Linewidth	Standard	< 1cm⁻¹												
	Injection Seeded	< 0.003cm⁻¹												
Models¹		SGR-S400			SGR-S500			SGR-S600			SGR-S800			
Repetition Rate (Hz)		10			20,30,50			20,30			20			
Energy (mJ)	1064nm	400			500			600			800			
	532nm	200			250			300			400			
	355nm	100			100			150			200			
	266nm	40			40			50			80			
Divergence⁷		≤0.7mrad			≤0.5mrad			≤0.5mrad			≤0.5mrad			
Beam Diameter⁶		8mm												
Other Specifications		Please refer to the table above												



1. All specifications, unless otherwise stated, are for Q-Switched 1064nm operation and are subject to change without notice.
2. Dev. to average (shot to shot for 99% of pulses).
3. Average for 8 hours with room temperature variation less than ±3°C .

4. Full width half max (FWHM).
5. Near field profiles measured at 10cm from laser output. Far field profiles measured at the focal plane, least squares fit to Gaussian profile.
6. Measured at the laser output.
7. Full angle at 1/e² of the peak.

8. With respect to external trigger.



Mechanical and Utilities

Models		SGR-S	SGR-10	SGR-20/30/40	SGR-50/60
Size(L×W×H) (mm)	Laser Head	1172×365×291	1172×333×291	1163×410×291	1297×450×310
	Power Supply	580×540×200	580×540×200	804×672×701	1477×680×730
Electrical Service		220V-50Hz-16A	220V-50Hz-16A	220V-50Hz-16A 380V-50Hz-25A	380V-50Hz-25A
RoomTemperature		5~30°C			
Length	Control Line	3m			
	Power Line	5m			
	Umbilical Line	3m			