

Nd:Glass SYSTEMS



160 J @ 1053 nm MM laser system

Ekspla offers wide range of high energy Nd:Glass laser systems. Typically Nd:Glass laser comprise

SLM diode pumped master oscillator, pre-amplifier, pulse shaper and main lamp pumped amplifiers.

SPECIFICATIONS

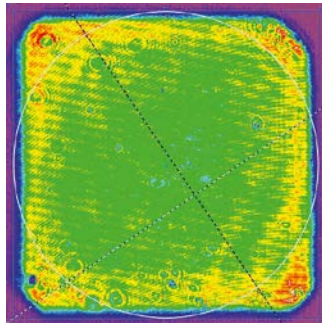
| Parameter | Value |
|--|---|
| Center wavelength | 1053 – 1060 nm |
| Pulse width | 500 ps – 20 ns |
| Max pulse energy single channel | 150 J |
| Beam spatial profile (near field) | “Top Hat” across 80% of beam cross-section (beam local intensity fluctuation max ±20% from the average intensity) |
| Pulse repetition rates | depending on system configuration from 1 shot in 1 min to 1 shot in 20 min for output energies >10 J |
| Shot to shot stability | below 2.0% rms @ fundamental in single channel configuration |
| Linewidth | <0.02 cm ⁻¹ @ 2 ns for single longitudinal mode (SLM), <1 cm ⁻¹ @ 4 ns for multimode (MM) |
| Pre-pulse contrast | better than 1 : 10 ⁵ |
| Polarization contrast | >100 : 1 |
| Output isolation from back-reflected light | >500 : 1 (Faraday isolator contrast) |
| Optical pulse jitter | typical <0.2 ns RMS, optional <10 ps RMS |
| Flashlamp lifetime | 2×10 ⁵ shots typical (typically >3000 hours of non-stop operation at PRR 1 shot/minute) |
| Pump diode lifetime | >10 000 hours typical |

Nanosecond High Energy Laser Systems

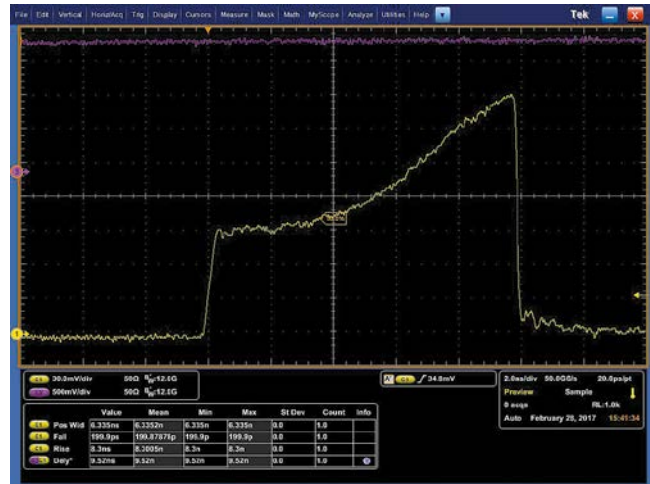
FEATURES

- ▶ *Front end options*
 - Diode pumped SLM or MM master oscillator featuring excellent stability, long lifetime and maintenance-free operation based on Nd:glass or Nd:YLF
 - Temporally shaped seeder / regenerative amplifier configuration allowing application of smoothing technics
 - Wave front correction system based on DFM
- ▶ *Optional SBS compressor ensuring high contrast pulses and controllable pulse duration*
- ▶ *Flashlamp / LD pumped pre-amplifier*
- ▶ *Up to Ø60 mm aperture Nd:glass power amplifiers*
- ▶ *Laser protection by Faraday isolators preventing damage of laser rods by back-reflected light*
- ▶ *Optimized design for maximum pulse energy extraction*
- ▶ *Separately controlled PFN circuits for each flash lamp*
- ▶ *Diagnostics and monitoring of system status based on microprocessor controller*
- ▶ *Software guide for step-by-step performance check at designated control points*
- ▶ *Optional second and third harmonic generators*

PERFORMANCE

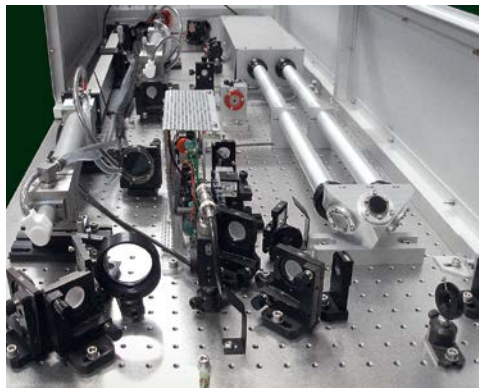


Spatial shaping of 33 J @ 1053 nm output pulses (beam of rectangular shape)

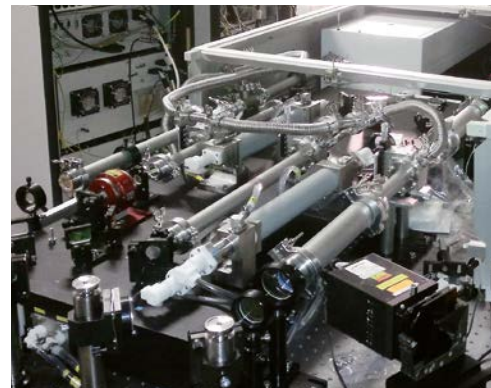


One example of the pulse wave form at the output @ 33 J (fundamental)

CUSTOM INSTALLATIONS



Amplifier system delivering 1 J at center wavelength 1060 nm, pulse width 800 ps and ~ 4 nm (FWHM) gain bandwidth



12 J @ 527 nm laser system during development stage



30 J Nd:glass system featuring arbitrary shaped temporal pulse shape