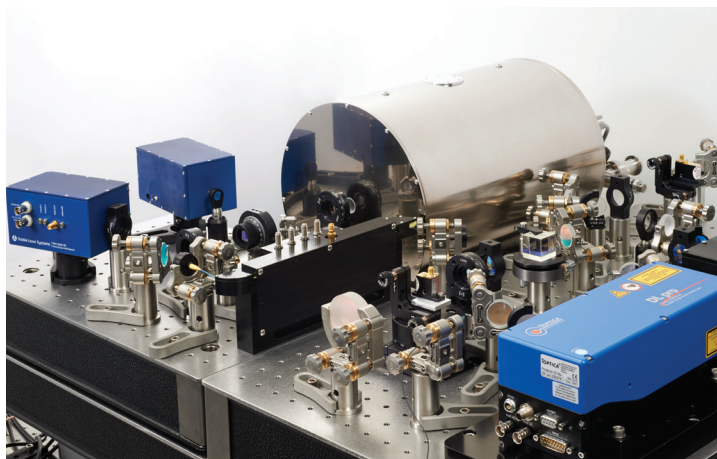


CUSTOMIZATION IS OUR SPECIALTY

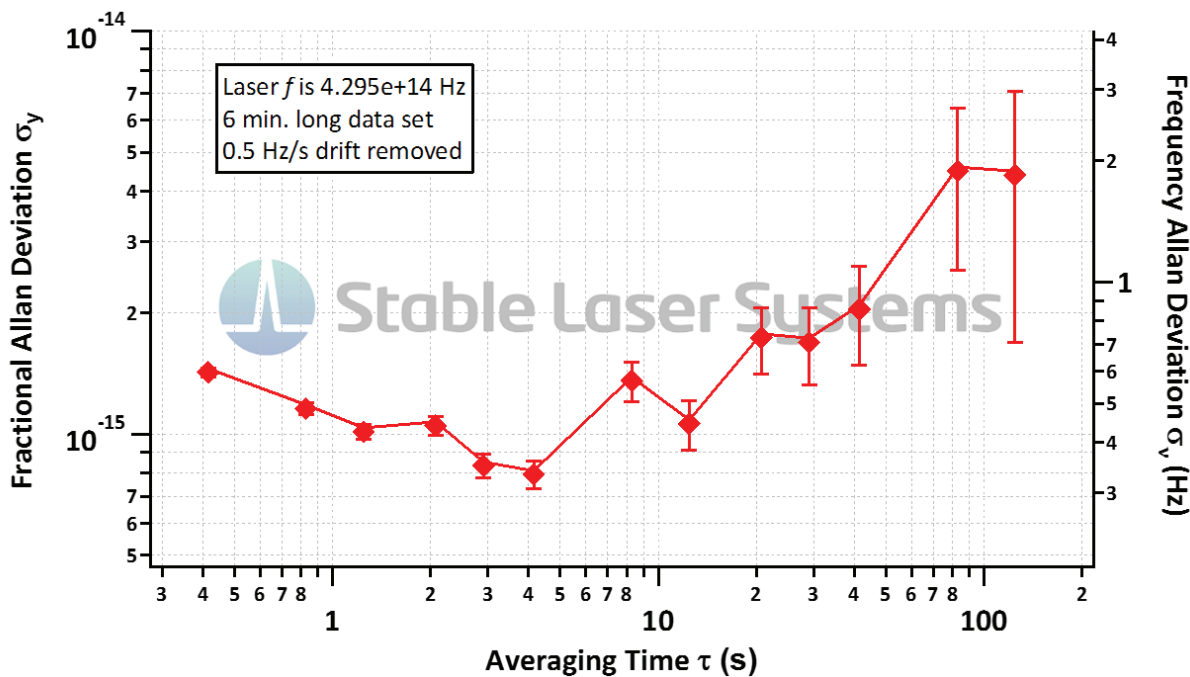
Stable Laser Systems proudly offers a wide range of complete stabilized laser systems built to suit the user's needs.

High-performance systems are available with linewidths less than 1 Hz and less than 20 kHz of daily frequency drift at room temperature. This stellar performance is achieved by use of a notched cylindrical cavity with high-finesse mirrors, which is carefully assembled in our renowned ultra-low drift cavity mount and vacuum housing. The quality of this system is in the details: characterization of the cavity prior to mounting, careful monitoring of cavity temperature and system power output (with transverse cavity mode image for systems below 1100 nm), active vibration isolation, fiber-coupled outputs, measurement of temperature at which cavity thermal expansion coefficient is zero, and more.

Our custom frequency stabilized laser systems are carefully engineered to improve access to new fields of research. Our vacuum housing and cavity mounting expertise is at the core of every system, as well as our knowledge of lasers and optics for various wavelength ranges. The output of every stabilized laser system is the frequency stability you need – guaranteed.



Custom stabilized laser assembly operating at 871 nm—the subharmonic of the Yb⁺ clock transition—with an integrated frequency doubling module for 435.5 nm generation.



MONITOR OUTPUT

- PDH error signal
- Reflected power from the cavity
- Transmitted power from the cavity (with image for systems below 1100 nm)
- Vacuum pressure
- Vacuum housing temperature

ELECTRONICS

Operating voltage	100/115/230 VAC
Power consumption	<100 W
Power frequency	50-60 Hz
Cooling requirements	None
Thermistors provided	Two: 10 k Ω at 25 °C
Heaters provided	6 Ω , 30 W

PERFORMANCE

Wavelength range	Custom, per user spec and suitable laser source availability. Available wavelengths with: (698, 729, 1032, 1064, 1156, 1550, & 1756 nm + others) Additional wavelengths are available upon request.
Output power	>10 mW (typical)
Stabilized laser linewidth	<1 Hz (measured over integration times of 1 s, in a beat with linear drift removed) with better performance on a best-effort basis
Daily laser drift	<20 kHz for operating temperature range
Operating temperature range	18-25 °C
Temperature drift	<7 mK/K of room temperature change
Thermal power required	<0.3 W/K of room temperature change
Cavity mounting accuracy	Within 1 mm of can axis
Achievable pressure	<3 \times 10 ⁻⁷ Torr
Cavity Zero Crossing	Direct measurement of the temperature at which cavity's thermal expansion coefficient is zero. Option: this temperature is guaranteed to be greater than room temperature for maximum stability.

MECHANICS & OPTICS

Input laser	Fiber laser, Ti:Sapphire laser, diode laser, or external cavity diode laser
Vibration isolation system	Herzan AVI-350ML
Optical cavity	ATF 6020-2 notched cavity, or ATF 6300 spherical cavity. Finesse > 500 000, depending on wavelength. One plano/plano mirror and one 50 cm ROC mirror.
Vacuum housing	Aluminum shell with Viton O-ring seals on front flange, indium wire seals on back flange, windows and stainless steel ConFlat tee. Tee has two 1.33" ConFlat fittings with ion pump and all metal valves.
Windows	Angled at 2° with respect to can axis; AR coated, R < 0.1 %
Vacuum can attachment to table	Dimensions: 80 x 80 x 40 cm
Typical optical unit	Dimensions: 80 x 80 x 40 cm Weight: 40-120 kg