

Overview

The **ventus** encompasses a range of high specification systems for desktop use in research laboratories and for integration into OEM products. Available at 3 green and 3 infra-red wavelengths, and at powers from 50 mW to 3 W (dependent on wavelength), the **ventus'** enhanced linear cavity produces a highly stable and near diffraction limited CW beam operating in TEM₀₀.



Applications

The **ventus** is designed to meet the high-spec requirements of advanced photonics research and high-tech commercial applications. The patented cavity produces a highly stable, low noise and diffraction limited beam, while still using the minimum number of optical components in a small, durable shell.

The **ventus** is Laser Quantum's most diverse range of lasers, serving applications such as Raman spectrography, fluorescence microscopy and particle image velocimetry. Its portability and ease of use contribute towards its reputation as a highly flexible bench-top laser.

The **mpc6000** power supply is recommended for research applications, as it provides a satisfying level of control through the large LCD screen and intuitive operational controls.

Alternatively, the compact, silent **smd6000** is ideal for OEM integration into commercial packages. It also allows direct modulation of the beam, via blanking of the diode, at up to 30 kHz.

Stability and Noise

The cavity is isolated from environmental thermal variations by an array of four PID temperature regulators, driven by the controller. Furthermore, the geometry of the cavity forms a highly effective noise filter, dramatically reducing green-noise through a unique, patented approach.

In aerospace qualification tests, **ventus** technology has demonstrated that it can maintain its high stability and low noise spec at temperatures ranging from -34° to +74° C.

Construction

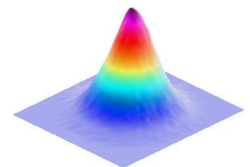
Laser Quantum manufactures all products to a very high standard; the **ventus** is no exception.

The effects of shock impacts are minimised by the use of zero-stress, non-adjustable mounts throughout the cavity and the laser's feet are designed to elastically deform under stress, eliminating mechanical stress in the head. The head itself is manufactured from a single, solid block of aluminium, and is thermally relaxed to further reduce any possibility of strain, and therefore misalignment.

Before shipment each **ventus** is subjected to rigorous quality assurance, in line with ISO9001. Every unit is N₂ purged and hermetically sealed. There follows a prolonged burn-in, under user-realistic conditions.

Beam Quality

The near perfect, circular gaussian profile is a consequence of the extremely low M², nearing unity.



Parameter	Value	Parameter	Value
Wavelength	532 nm	Divergence	0.8 mrad
Transverse Mode	TEM ₀₀	M ²	<1.1
Stability (rms)	<2.0 %	Polarisation Ratio	>100:1
Noise (10Hz -5MHz)	<2.0 %	Polarisation Dir.	horizontal
Bandwidth	<30 GHz	Beam Size	1 mm