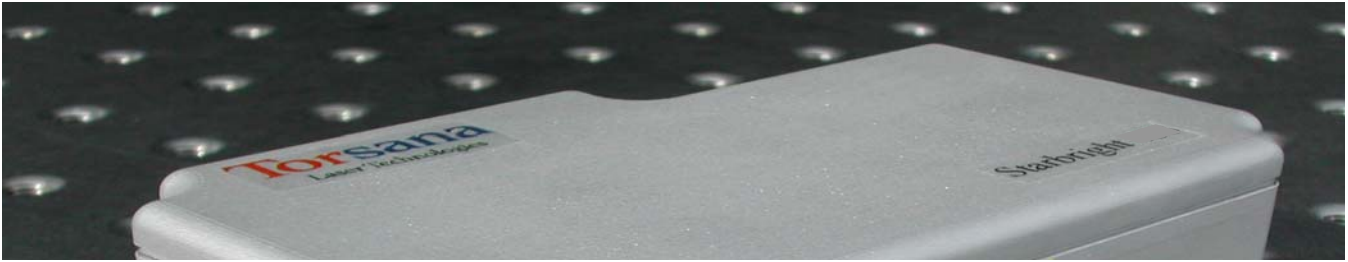


## Starbright 785XM



### Ultra high resolution and short acquisition time

The Starbright lasers are based on a novel proprietary feedback technology for broad-area emitting diode lasers, delivering ideal specifications for analytical purposes.

The StarBright 785XM is designed specifically for Raman microscopy, but is equally suited for interferometry, Lidar and for frequency doubling, Excellent ASE repression ensures collection of spectra very close to the laser line with very weak peaks.

### Compact, reliable and power saving

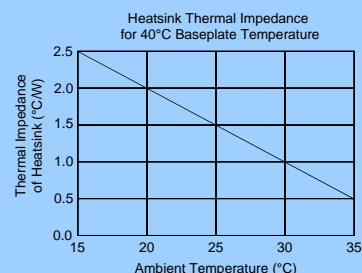
High power levels can be obtained while still maintaining an excellent beam quality, enabling short acquisition time as well as ultra high spatial and spectral resolution.

The spectral linewidth of the Starbright lasers is very narrow, leading to a unique combination of high power, good beam quality and perfect stability in terms of power and wavelength, even under the influence of strong ambient temperature changes.

|  |  |
|--|--|
| Output power (CW)                                | 500 mW   |
| Wavelength                                       | 785 nm $\pm$ 0.3 nm  |
| Linewidth  | $\approx$ 10 – 15 MHz single-frequency, $< 3.5 \times 10^{-4} \text{ cm}^{-1}$ , $2 \times 10^{-6} \text{ nm}$ |
| Wavelength stability                             | $\approx$ 20 pm/100hr ambient temperature from 20 – 30 °C  |
| Beam size  | 0.7 mm   |
| Beam pointing stability                          | 40 $\mu$ rad (15 – 35 °C)  |
| Long term power stability                        | $< 2\%$ over 2 hrs   |
| Power noise, rms (20 Hz – 2 MHz)                 | $< 0.5\%$  |
| Power noise, peak - peak (20 Hz – 20 KHz)        | $< 1.5\%$  |
| Polarization                                     | 1:100  |
| Beam quality                                     | $M^2 < 1.7$  |
| Beam Divergence (full angle)                     | 2.9 mrad   |
| Warm up time from Off                            | $< 10$ min   |
| Warm up time from stand by                       | $< 30$ sec   |
| Ambient temperature range                        | 20 – 30 °C   |
| Expected lifetime                                | $> 10,000$ hours   |
| Power consumption                                | Max. 8A / 40 Watt  |
| Physical dimensions, laser head without isolator | 124 x 73.5 x 44 mm (L x W x H)   |
| Alignment tolerances: Beam position / Beam angle | $\pm 0.7$ mm / $\pm 0.7$ mrad  |
| Controller requirement                           | 4 W  |

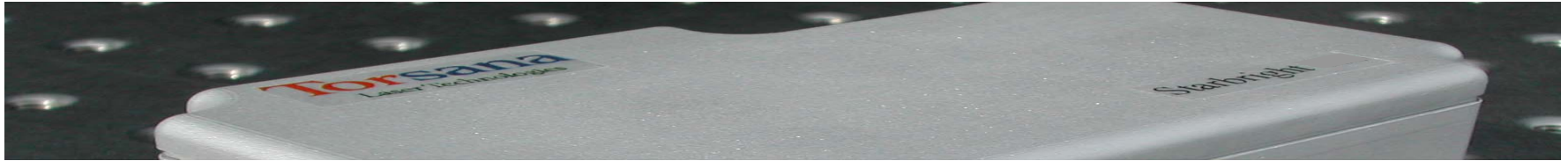
The laser is available with single mode fiber coupling and coupling to larger diameter fibers. It includes the compact and versatile Starbright laser controller and a high-quality optical Faraday isolator to prevent optical feed back damage.

The laserhead must be attached to a heat sink. The required thermal impedance is illustrated opposite.

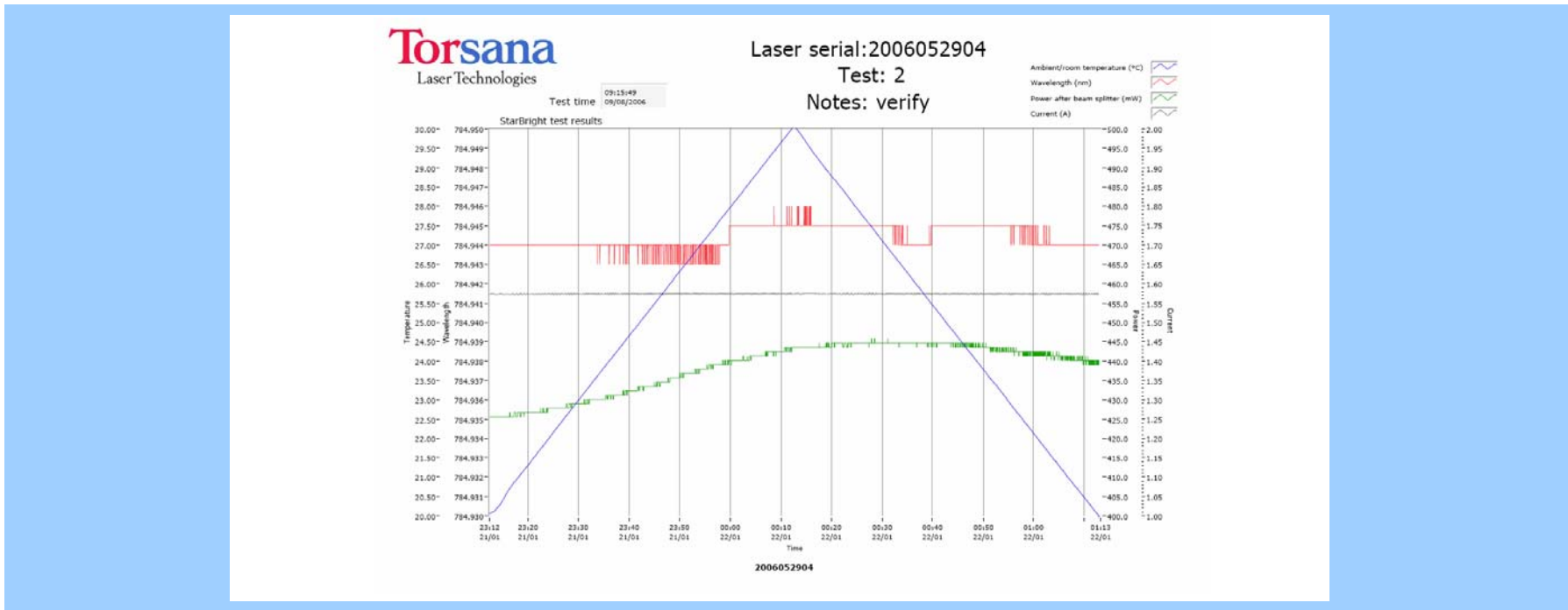


Specifications are subject to change without notice.

Torsana Laser Technologies A/S, [www.torsanalaser.com](http://www.torsanalaser.com), phone +45 45 56 00 56



The laser performance is excellent, even under the influence of strong room temperature change: The wavelength drift of the laser can be reduced to a few pm over hundreds of hours in a stable laboratory environment. An exhaustive quality assurance program including our demanding temperature cycling stress test ensures uncompromised laser performance, even after thousands of operational hours. Below is a curve of laser performance vs. ambient temperature change. Every laser is delivered with a test report and temperature stress test documentation to ensure complete specification fulfillment. The absolute instrument resolution is  $\pm 1$  pm.



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**Spectra very close to the laser line and weak peaks** can be collected due to a powerful repression of ASE. Single-frequency operation of the laser ensures that the only influence on resolution is from the spectrometer. The graph below shows a Raman spectrum of sulphur taken with the Starbright 785 XM laser.

