

## THE GOLD STANDARD IN LASER DENTISTRY - SIROLASER BLUE

The term LASER is an acronym for "Light Amplification by the Stimulated Emission of Radiation". Since its introduction in dentistry in 1960 by Mianan and its application to oral hard and soft tissues, notable progress has been made. The laser treatment has proven to be more expensive than traditional treatment, but, as laser reduces bacterial levels and postoperative pain, it is an effective tool for increasing the efficiency, specificity, ease and comfort of dental treatment. Oral hard and soft tissues have a specific affinity for absorbing laser energy with a certain wavelength. A dental laser wavelength is the decisive factor for the level at which the laser energy is absorbed by the target tissue. The laser selection depends on the target tissue that the practitioner wants to treat. The energy radiated by the laser is basically a single color light (monochrome) and therefore a single wavelength. Currently, the practitioner has the opportunity to choose from a series of lasers, one of a single color, which he considers most useful for his daily practice.

SiroLaser Blue is the world's first diode laser that includes a blue diode, an infrared diode and a red diode. All these different shapes make it a versatile tool for laser treatment suitable for different dental applications.



**Dental diode laser - SiroLaser Blue Dentsply Sirona**  
**Sirona Dental Systems GmbH**  
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The therapeutic indications of SiroLaser Blue depend on the color of the wavelength.

### *Blue wavelength - 445 nm*

The blue laser light has a much higher degree of soft tissue absorption than conventional wavelengths of infrared lasers (810 nm, 940 nm, 970 nm). It provides a much improved soft tissue cutting efficiency without bleeding in the sterile surgical field, allows a non-contact cutting, a does not require the removal of tissue residue from the fiber during treatment. Due to the high level of hemoglobin absorption, the hemostatic effect is remarkable, which is an advantage in all surgical treatments, as well as in the CAD / CAM work-flow.

The patient has significantly lower postoperative pain, often does not need antibiotics and benefits from healing almost without scarring.

### *Infrared wavelength - 970 nm*

The use of infrared laser light contributes to an improved reduction of germs in endo, perio and implantation treatments.

In endodontics, the laser is used after preparing and

Here are the technical data of the SiroLaser Blue:

Wavelength and operating performance	445 nm +/-5 nm / 0.2 – 3.0 W (CW) 660 nm +/-5 nm / 25, 50 and 100 mW (CW) 970 nm -10/+15 nm / 0.2 – 2.0 W (CW)
Laser operating mode	Continuous Wave Chopped Mode
Frequency	1 – 10.000 Hz
Duty cycle	Variable
Weight	~ 1,3 kg (incl. handpiece and battery)
Dimensions	~ 19,7 cm x 18,2 cm x 18,9 cm

washing the root canal to effectively reduce germs and bacteria in areas where an irrigation fluid can never reach, leading to a better long-term prognosis. In periodontics and implantology, within the sanitization procedure, the laser supplements the descaling, contributing to the improvement of the periodontium condition, without surgery and with minimal discomfort. It also ensures the exposure of the implant, decontamination and the realization of clear preparation margins for fingerprints and scans.

### *Red wavelength - 660 nm*

The red laser light is used for Photobiomodulation (PBM), also known as Low-Level-Laser-Therapy (LLLT). Photobiomodulation works by applying the photonic energy of the light to the tissue. It penetrates the skin barrier and is absorbed by cells, where it initiates physiological reactions with mitochondria.

Photobiomodulation can be used in clinical cases of temporomandibular joint dysfunction (TMJD), TMJ pain, muscle masseter pain, mouth opening limitation, burning mouth-syndrome, dentin hypersensitivity, wound healing.

The technical possibilities provided by SiroLaser Blue, the world's first diode laser with three different colors, allows the practitioner to use a versatile tool that provides comfort for the appropriate laser treatment for over 20 different dental applications.

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