

3mikron™ - High-power, diode pumped laser technology (2 - 3 μm)

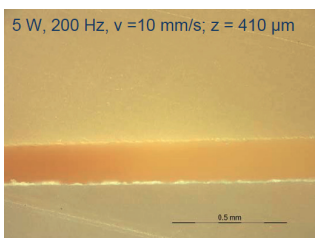
3mikron™ is the technology platform for compact, efficient, fast and reliable lasers for a wide range of potential applications in the field of medical engineering. It enables a new generation of innovative mid-IR lasers based on diode-pumped solid-state technology, operating at wavelengths of 2 to 3 μm using different types of laser crystals (e.g. Er:YAG, Er:YSGG, Tm:YAG, Er:YLF).

Compared to mechanical tools, traditional laser technologies (e.g. flash lamp pumped Er:YAG laser, CO₂ lasers) and RF technology 3mikron™ offers several benefits regarding treatment of soft and hard tissue:

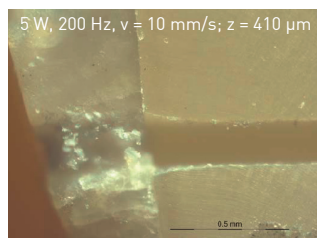
APPLICATION BENEFITS

- . Precise treatments (cutting width < 100 μm)
- . Controllable thermal impact by laser parameters
- . Cold ablation (cut like a scalpel)
- . Hot ablation (coagulation) by stacked pulses
- . Selective ablation
- . Endodontics
- . Peridontal treatment
- . Limited lateral thermal damage
- . No unwanted vibrations to the patient
- . Short operation time
- . Fast healing
- . Optimized for soft and hard tissue treatment

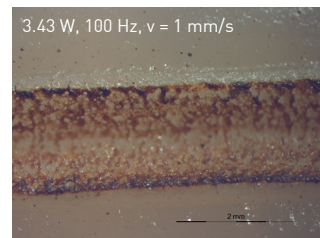
This work was done in cooperation with the Institut für Lasertechnologien in der Medizin und Meßtechnik at the University of Ulm, Germany



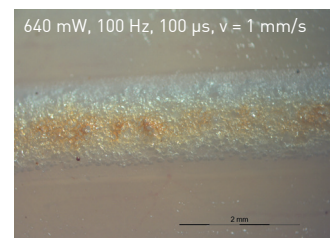
Tooth (Dentin), with waterspray



Tooth (Enamel), with waterspray



Soft Tissue, Coagulation



Soft Tissue, Coagulation

Optical parameters

Technology	Monolithic DPSSL
Wavelength	2940 nm
Average Output Power (max)	15 W
Pulse Energy (max)	75 mJ (HE: 150 mJ)
Pulse Repetition Rate	up to 2 kHz
Pulse Duration	1 to 250 μs (HE: 1 to 400 μs)
Duty Cycle (max)	10%

DPM-15 (HE)

Mode of Operation	Pulsed
Ideal Fiber Diameter	≤ 200 μm
Beam Quality	M ² < 15
Efficiency (optical-optical)	~ 10%
Divergence (half angle) (mrad)	< 20 mrad
Beam Diameter	1.6 mm
Beam Shape (focus)	top hat like



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Pantec Medical Laser strives for innovative solutions in the field of minimal-invasive laser based medical engineering. As exclusive supplier of unique laser technologies - 3mikron™ and fam™ - Pantec Medical Laser provides customized solutions from laser unit to complete application devices. Pantec Medical Laser is a business unit of Pantec Engineering AG.

Pantec Engineering AG provides solutions in automation and mechatronics for the mechanical engineering and medical device industries worldwide. Through its rigorous focus on niche strategies and high degree of service orientation, the company has become a world leader in its five primary markets.