

# SAPPHIRE

Hard and Soft Tissue Dental Laser



THE OPTIMAL LASER TO SUIT ALL  
DENTAL PRACTICES



# SUPERIOR FEATURES TO SUIT ALL PRACTICE REQUIREMENTS

The SAPPHIRE dental laser is designed for traditional use or highly specialized needs in all types of clinical settings. Its modular and portable console with user-friendly GUI helps dentists achieve their treatment goals.



## Product Highlights

### Built-in Water Spray System

- Supplies stable air and water flow to tip of the laser handpiece
- Water spray cools oral tissue during the laser operation
- Easy setup with no need for calibration
- Integrated directly into the back of SAPPHIRE to save clinic space

### Laser Embedded Handpiece

- Carefully crafted for ease and precision when delivering laser applications
- Unique technology and durability with medical-grade aluminum alloy
- Fully rotatable, minimizing resistance and fatigue of dentist's hand
- Attached to a robust non-optic fiber flexible soft tube, ensuring full control and superior operating experience



### Compact and Mobile

- Innovative and user-friendly design
- Lightweight system facilitates greater mobility in any clinical environment

### Footswitch

- Offers additional versatility and provides a clean operating space



## Customized to All Dental Practices

### Advanced User Interface

- User-friendly GUI on an 8" color LCD monitor, enabling the most intuitive operating experience
- Resistive touch screen allowing convenient usage through surgical gloves
- Adjustable screen accommodating to the dentist's height and preferred angle of operation

### Built-In Treatment Protocols

- 20 convenient preset parameters embedded into the system
- 2-step navigation design allowing easy activation of the laser protocols
- Fully customizable for storage of preferred treatment parameters

### Minimally Invasive Treatment Technology

- Enhances treatment experience for both the dentist and the patient
- Eliminates high pitched sounds and unpleasant vibrations from the conventional drill



Step 1. Select procedure



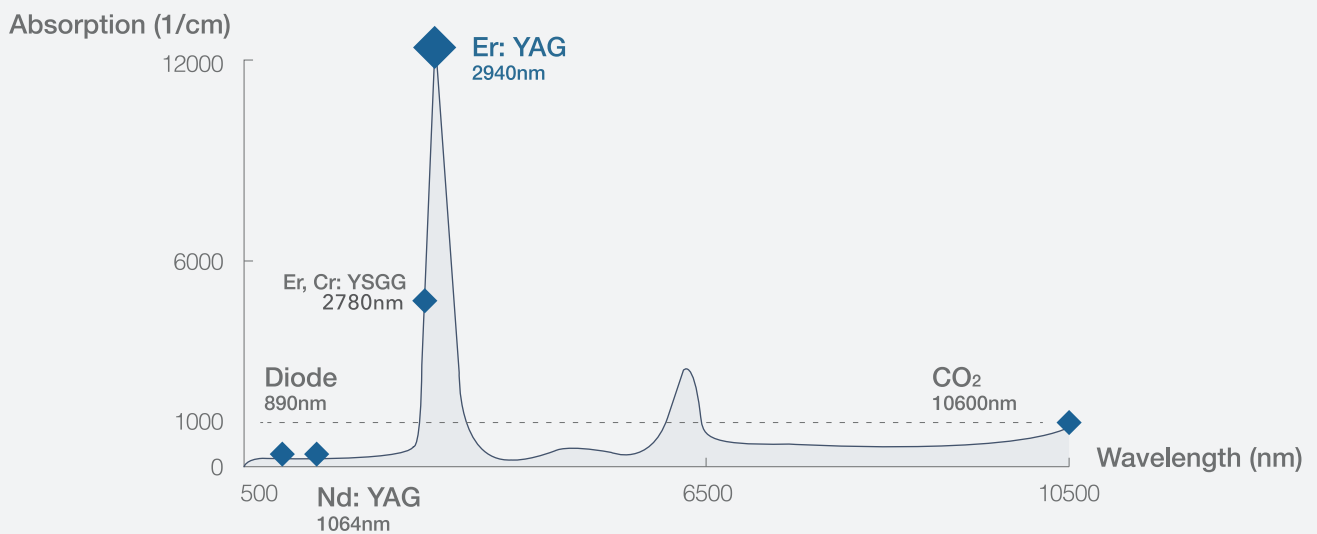
Step 2. Confirm parameters and begin

# UNRIVALED BENEFITS OF Er: YAG LASER

The SAPPHIRE dental laser is designed with patient comfort in mind. Its Er: YAG laser produces minimal collateral damage and delivers the most effective clinical treatments when compared with other laser wavelengths.

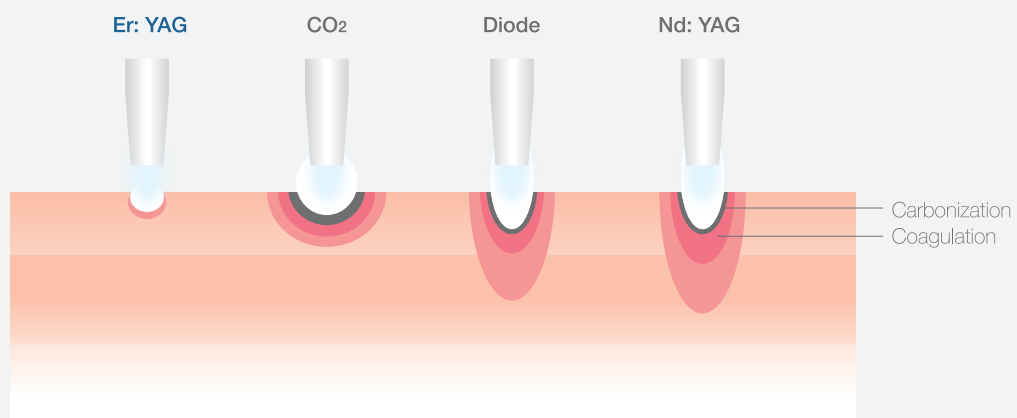
## Ideal Properties for Hard Tissue Treatment

- Clinically proven to be the most efficacious and efficient wavelength for enamel, dentin, and bone ablation procedures
- Er: YAG laser is considered the safest laser wavelength as its laser energy is mostly absorbed in the metamorphosis of water molecules



## Minimally Invasive Soft Tissue Procedures

- Ablates only the surface of the irradiated soft tissue
- Produces the least collateral thermal damage when compared to Nd: YAG and CO2 lasers
- Promotes shortest recovery time and optimal clinical results



# SAPPHIRE in Everyday Clinic



## Restorative Dentistry

- **Microsurgery:** Conserves most of the healthy enamel and dentin with Er: YAG laser's selective and precise ablation.
  - **Great Visibility:** Permits excellent visibility to surgical site with non-contact work.
  - **No Micro Fractures:** Er: YAG laser affects only the surface of the irradiated area, and does not produce micro cracks on hard tissue.
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## Periodontal

- **Natural Bactericidal Effect:** Laser's natural bactericidal property results in effective periodontal disinfection and predictable treatment results.
  - **Less Needles:** Due to the minimally-invasive property of laser, many periodontal procedures may be operated without anesthetic needles.
  - **Faster Healing:** Significantly reduces post-operation discomfort and recovery time. Patients can quickly return to their work and daily lives.
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## Endodontics

- **Opening Preparation:** Produces less collateral thermal damage and micro fractures.
  - **Root Canal Sterilization:** Removes smear layer and cleans root canals.
  - **Apicoectomy:** Performed in a cleaner and less invasive way.
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## Pedodontics

- **No Anesthetic Needles:** Due to the minimally-invasive property of Er: YAG laser, many of the restoration procedures may be done without anesthetic needles.
  - **Quicker Procedure:** Permits quicker restoration procedures than rotary drills.
  - **Optimal Patient Comfort:** Laser treatment eliminates vibrations and high-pitched sounds, resulting in a compliant and peaceful treatment.
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## Implant Dentistry

- **Implant Uncovering:** Ensures fast and precise implant uncovering procedure, as the soft tissue's laser ablation threshold is much lower than the metallic implant.
  - **Peri-implantitis:** Provides effective solution to contaminated implants.
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## Aesthetics

- **Fast Recovery:** Er: YAG laser permits significantly shorter recovery time for aesthetic treatments like gum re-contouring, crown lengthening and gum pigmentation.
- **Less Pain, More Precision:** Er: YAG laser enables excellent pain management and precise cutting, anesthesia is not required in many aesthetic procedures.
- **Quicker Procedure:** Permits shorter procedure time than traditional approaches.

# REVOLUTIONARY LASER EMBEDDED HANDPIECE TECHNOLOGY

Designed for ultimate performance and versatility, the SAPPHIRE dental laser includes a comfortable and ergonomic handpiece that fits with a variety of treatment tips.

## Angled Handpiece

- Designed for use with autoclave
- “Click” tip installation and removal
- Weightless and ergonomic design ensures optimal operating experience



## MAGNUM TIP

Delivers ultimate laser. Recommended for **Caries Removal** and **Enamel Removal**.

ST 010  
1.35 x 6.3 mm



## CYLINDRICAL TIPS

Recommended for **Enamel Removal, Dentin Removal, Caries Removal, Laser Etching, Desensitization, Ostectomy, Osteoplasty, Gingival Depigmentation, Implant Decontamination** and **Oral Ulcer** procedures.

ST 100\*  
1.35 x 14 mm  
ST 110  
1.35 x 17 mm  
ST 120\*  
1.35 x 19 mm

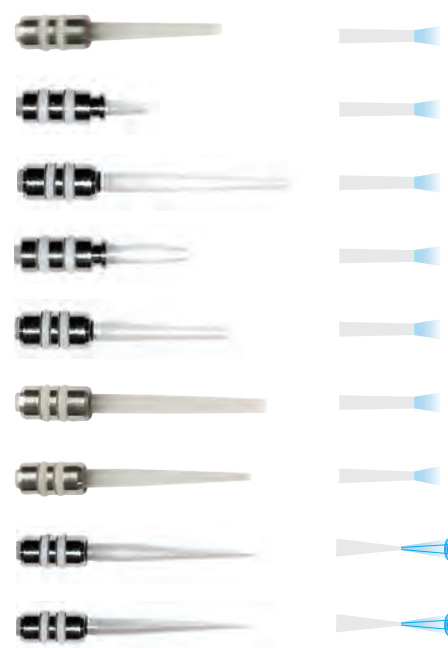


## CONICAL TIPS

Recommended for general incision, excision, **Ostectomy, Osteoplasty, Apex Cutting, Flap Incision, Frenectomy, Implant Uncovering** and **Crown Lengthening** procedures.

If the physician requires fine cutting, conical tips are also ideal for use in ablation procedures like **Caries Removal** and **Enamel Removal**.

ST 200\*  
0.8 x 14 mm  
ST 201  
0.8 x 8 mm  
ST 205  
0.8 x 17 mm  
ST 214  
1.0 x 10 mm  
ST 215  
1.0 x 14 mm  
ST 220\*  
1.0 x 17 mm  
ST 240\*  
0.6 x 17 mm  
ST 250  
0.4 x 17 mm  
ST 270  
0.2 x 17 mm



## CHISEL TIP

Recommended for calculus removal, **Scaling and Root Planing, Flap Incision, and Pocket Debridement** procedures.

ST 700\*  
0.3 x 17 mm



## BLADE TIP

Recommended for finer cuts of Soft Tissues.

ST 701  
0.4 x 17 mm



## SIDE FIRING TIP

Designed to deliver laser at a 90° angle, providing better access to particular surgical sites.

ST 900\*  
1.35 x 19 mm



\* The following tips are part of the standard tips set: ST100, ST120, ST200, ST220, ST240, ST700, ST900.  
In the EU market, only standard tips are available.

## TECHNICAL SPECIFICATIONS

OPTICAL		ELECTRICAL & OPERATION	
Laser Type	Er: YAG (Erbium: Yttrium, Aluminum, Garnet)	Input Voltage	100-230 VAC, 50/60 Hz
Wavelength	2,940 nm	Current Rating	< 10 A
Laser Classification	Class 4, acc. to IEC 60825-1	Control Panel	High resolution, Color touch panel
Laser Emission Mode	Pulsed emission	Protection Degree of Foot Switch	Waterproof IPX II, ON/OFF switch
Max Pulse Energy	700 mJ +20%	Cooling Water Flow	> 0.6 L/min
Pulse Duration	90-650 µs	Cooling Water Type	Distilled water/Sterile water
Frequency	10-50 Hz	Compressed Air System	Pressure range of built-in stabilizer: 60-80 psi
Energy Density	< 9908 mJ/mm <sup>2</sup> (varies based on the tip used)	SYSTEM CONSOLE	
Max Output Power	8.4 W	Dimensions (L x W x H)	11.8 x 20.5 x 35.8 in (30 x 52 x 91 cm)
Spot Size at Distal End of Tip	0.2-1.35 mm (varies based on the tip used)	Weight	77.6 lbs. (35.2 kg)

- LIGHTMED DENTAL is an ISO 13485:2016 certified company
- SAPPHIRE is cleared by the FDA with 510(k) No.: K170073 and complies with: US regulation of laser products 21 CFR 1040.10 and 1040.11
- Product design meets the accepted standards of laser product: IEC 60825-1



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