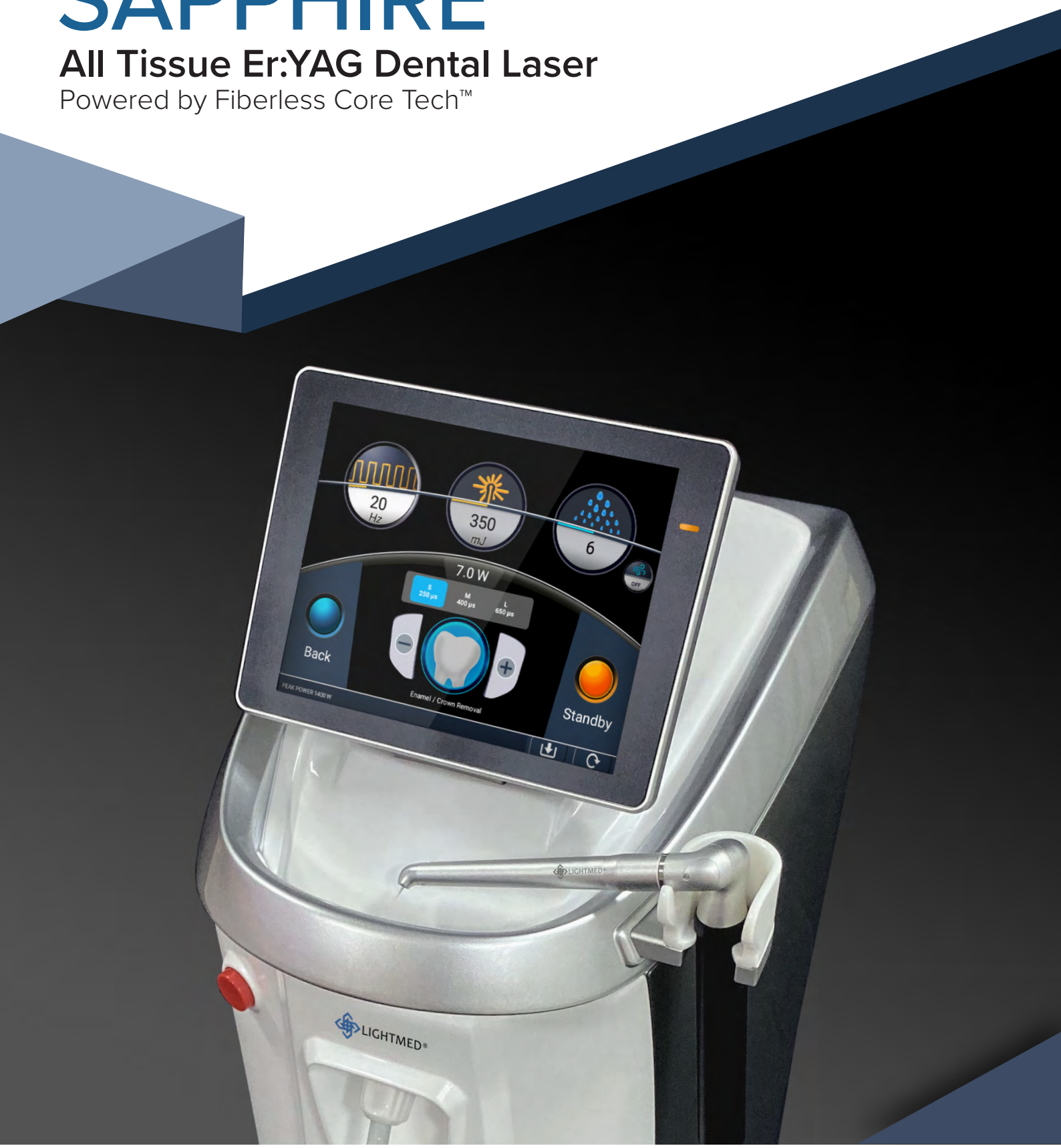
# SAPPHIRE

## All Tissue Er:YAG Dental Laser

Powered by Fiberless Core Tech™




THE OPTIMAL LASER TO SUIT ALL DENTAL PRACTICES

LIGHTMED®

# 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

### Integrated 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

### Fiberless Core Tech™

- Laser integrated directly into the handpiece - no fragile optical fibers to replace
- Lightweight, fully rotatable medical-grade aluminum alloy construction
- Flexible non-optic soft tube for superior control and ergonomic comfort during extended procedures

### Built-in Air Compressor

- Integrated air system for true plug-and-play simplicity - no need for calibration
- No external compressors or clinic modifications required
- Consistent cooling performance throughout procedures
- Reduces long-term ownership costs



### Compact and Mobile

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

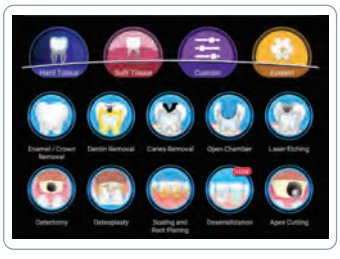
### Footswitch

- 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 the dentist’s height and preferred angle of operation



Step 1. Select procedure




Step 2. Confirm parameters and begin

### 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

# UNRIVALED BENEFITS OF Er:YAG LASER

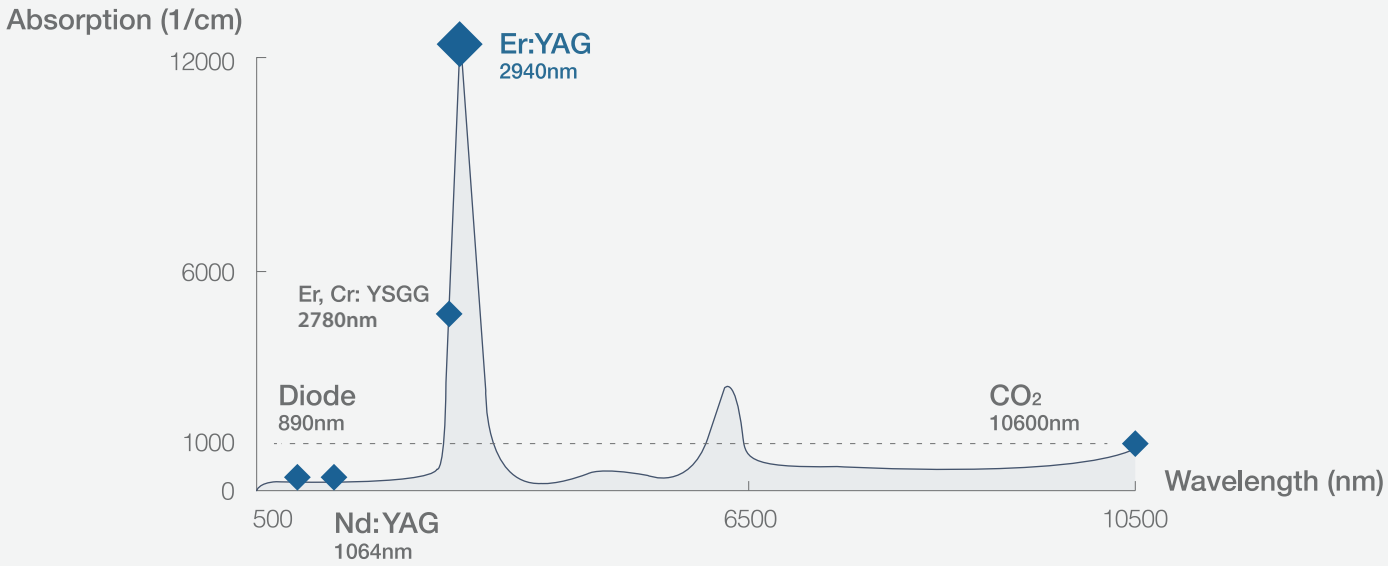
The SAPPHIRE dental laser is designed with patient comfort in mind. Its Er:YAG laser produces minimal collateral damage and delivers the most effective clinical treatments when compared with other laser wavelengths.

## 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

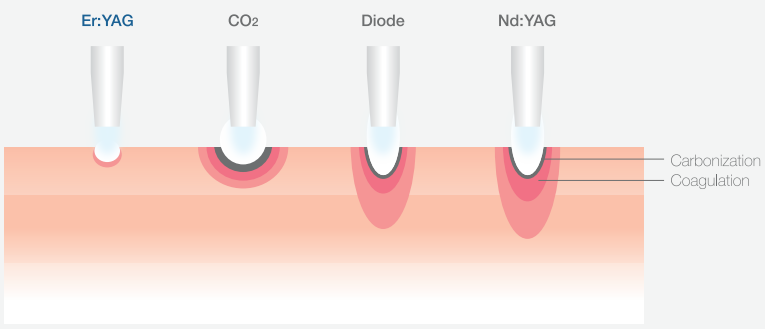
## Ideal Properties for Hard Tissue Treatment

- Clinically proven to be the most efficacious and efficient wavelength for enamel, dentin, and bone ablation procedures
- Er:YAG 2940nm 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 $CO_2$ 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.
- **Fewer Needles:** Due to the minimally-invasive property of laser, many periodontal procedures may be performed 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 that of the metallic implant.
- **Peri-implantitis:** Provides an effective solution for 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 gingival depigmentation.
- **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.

# FIBERLESS CORE TECH™: REVOLUTIONARY LASER EMBEDDED HANDPIECE TECHNOLOGY



Fiberless Core Tech™ integrates the laser source directly inside the handpiece, eliminating fragile optical fibers entirely. No fiber replacement and no consumables mean consistent power delivery and lower cost of ownership.

## 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 power. 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

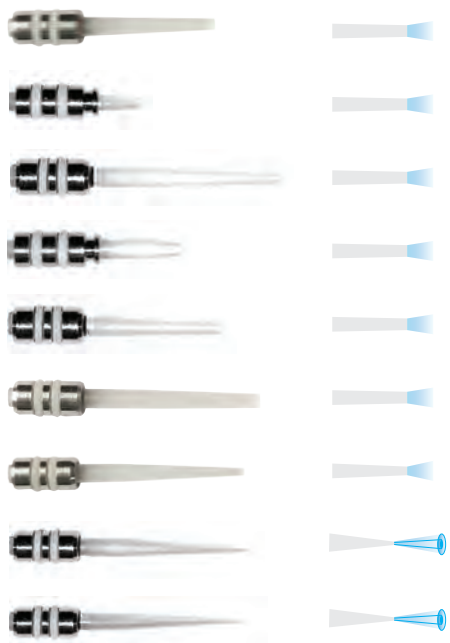
ST 215
1.0 x 14 mm

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



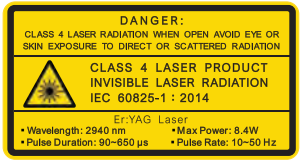
* The following tips are part of the standard tips set: ST100, ST120, ST200, ST220, ST240, ST700, ST900.
Tips without an asterisk are only supplied in specific countries/regions based on registration scope.

## TECHNICAL SPECIFICATIONS

| OPTICAL | | ELECTRICAL & OPERATION | |
|---|---|---|---|
| Laser Type | Er:YAG (Erbium: Yttrium, Aluminum, Garnet) | Input Voltage | 1100-240 VAC (100-230 VAC where required by local registration), 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/mm² (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) |

FDA
U.S. 510(k) Cleared
K170073

CE 2460




- 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

www.lightmed.com

LIGHTMED®

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**LIGHTMED DENTAL TECHNOLOGY CORP.**
5F, No. 96, Luke 5th Rd. | Luzhu District | Kaohsiung City 82151 | Taiwan
T: +886 7 695 5111 | F: +886 7 695 5211

**LIGHTMED CORPORATION**
No. 1-1, Lane 1, Sec. 3, Pao An St. | Shulin District | New Taipei City 23861 | Taiwan
T: +886 2 2688 1726 | F: +886 2 2676 4920

**LIGHTMED USA**
1130 Calle Cordillera | San Clemente, CA 92673 | USA
T: +1 949-218-9555 | F: +1 949-218-9556
www.lightmed.com | sales@lightmed.com