



Brainstorming international patent

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THE POLYVALENT YAP™ LASER

TECHNOLOGY DEVELOPED FOR DENTAL APPLICATIONS



WHO ARE WE?

CLAREMONT™ MEDICAL PRODUCTS

WHO ARE WE?

A subsidiary of the BALLINA CAPITAL™ group, CLAREMONT™ is a French company specialized in the distribution of medical equipment.

Since it was founded in 2003, BALLINA CAPITAL™ has applied an active creation and acquisitions policy and the group now consists of seven companies. It has recently stepped up its presence in the medical world through the acquisition of the international patent rights for the Nd:YAP laser by one of the group's members, BRAINSTORMING™.

Distributed through CLAREMONT™'s extensive network, the Nd:YAP dental laser is now available in Europe, the Middle East and the United States (27 countries to date). CLAREMONT™ has become a key player in the dental laser sector.

CLAREMONT™ uses its innovative potential to serve its customers. The company works closely with its clients, providing training, maintenance services and clinical support.

THE YAP DENTAL LASER
IS A VERSATILE INSTRUMENT
MEETING THE NEEDS OF BOTH
DENTAL PRACTITIONERS
AND THEIR PATIENTS.



WHY THE YAP LASER?

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The YAP laser was designed for dental practitioners requiring a versatile laser for use in their routine practice.

The laser requirements in dentistry are extremely precise.

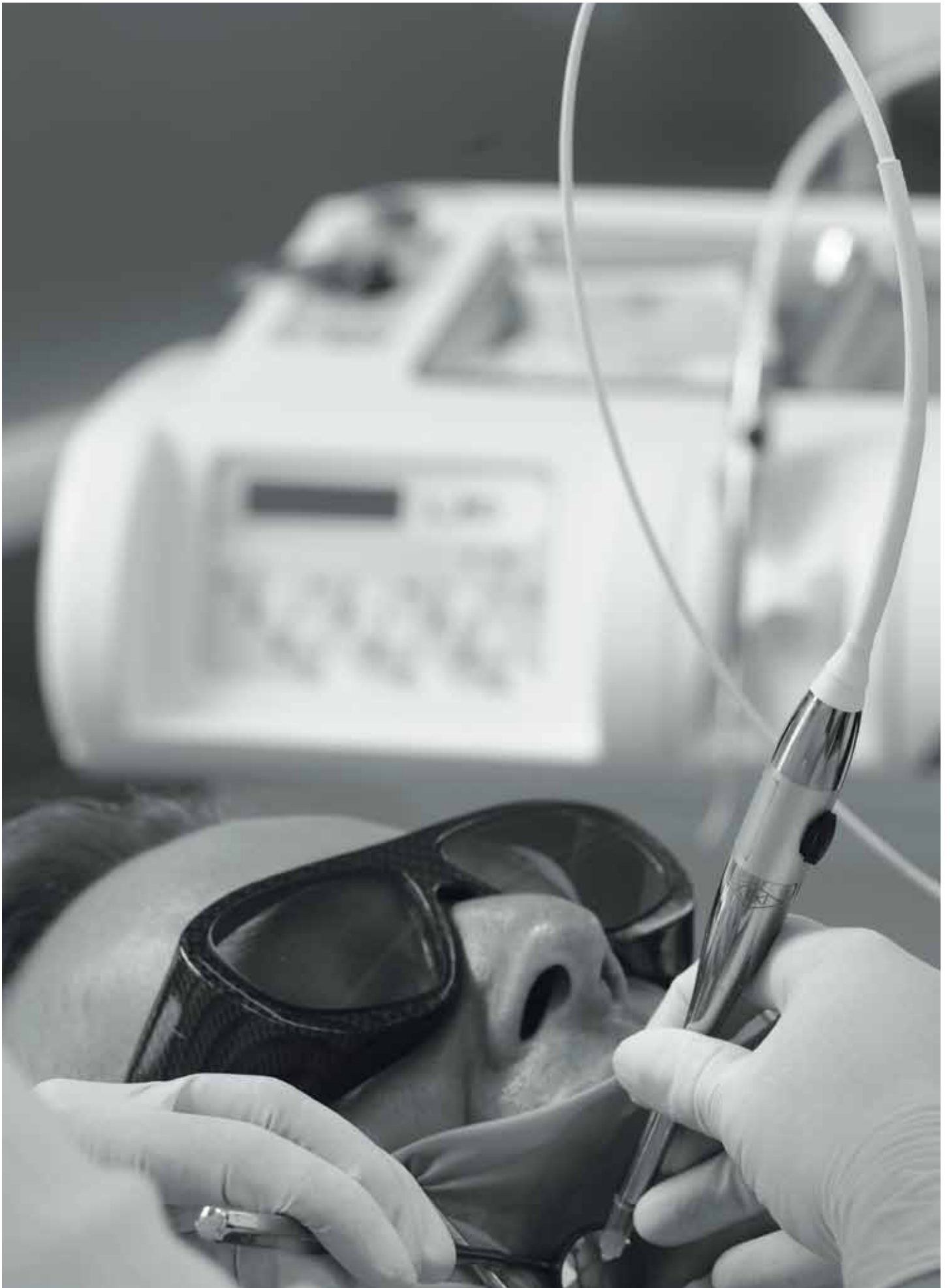
A dental laser:

- **Must be capable of cutting soft tissues and suitable for hard tissue ablation,**
- **Have a beam which can be transmitted via a small diameter optical fiber,**
- **Have low running and maintenance costs.**

Dental practitioners were looking for a «multipurpose», user-friendly system for use in their daily practice alongside their more traditional equipment.

Patients wanted shorter, less invasive and less painful treatments, which would also help them conserve their teeth.

The technical specifications of the YAP laser meet the requirements of both practitioner and patient.



HOW DOES THE YAP LASER WORK?

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LASER stands for Light Amplification by Stimulated Emission of Radiation. The history of laser began in 1917, when Albert Einstein published his famous quantum theory demonstrating that the light emitted by atoms can be caused either by spontaneous incoherent radiation or by stimulated coherent emission. Laser emits a coherent light beam whose «light grains» (photons) are identical and in phase. Laser type is defined by the nature of its source and its wavelength.

The YAP laser uses:

- a Nd:YAP (Neodymium-doped Yttrium Aluminium Perovskite)-type crystal,
- a flash lamp as a light source transferring energy to the crystal,
- a device capable of creating a pulsed emission,
- the technical means making it possible to select light ray emission at a wavelength of 1340 nm, which is massively absorbed by tissues and in particular by the water they contain.

The 1340 nm wavelength makes it possible to use an optical fiber to transmit the laser beam.

THE ND:YAP DENTAL LASER
EMITS AT A WAVELENGTH
OF 1340 NM,
WHICH IS COMPATIBLE
WITH OPTICAL FIBER
BEAM TRANSMISSION.

TECHNICAL CHARACTERISTICS PROVIDING SPECIFIC BIOLOGICAL EFFECTS

Thanks to the specific 1340 nm wavelength, the YAP laser has the unique advantage of being extremely well absorbed by:

- water, making it possible to cut and light-vaporize naturally hydrated soft tissues such as the gum, without the risk of necrosis,
- hemoglobin, which makes it possible to coagulate and control bleeding thanks to its hemostatic action,
- nickel, titanium and steel, offering possibilities such as removal of a broken instrument from a root canal and extraction of a post or any other metal object.

The YAP laser emits in pulsed mode. The impulses delivered have a very short lasting ($\leq 150 \mu s$), high power peak (2.6 kW), at frequencies of 5, 10 and 30 Hz, allowing targeted use. Tissue warming during treatment is extremely limited, sparing adjacent tissues. Post-operative edema, inflammation and pain are thus substantially reduced and sometimes entirely eliminated. Using the control panel, impulse power, rate and duration are simply and easily selected depending on the tissue to be treated.

The laser beam is transmitted by a fine, flexible optical fiber measuring either 200 or 320 μm in diameter, depending on the intended use. This minimal diameter makes it possible to treat even the narrowest root canals or periodontal pockets.

DIFFERENT STUDIES HAVE ALSO SHOWN THAT THE YAP:

- *has a bactericidal effect on periodontopathogenic bacteria,*
- *accelerates healing,*
- *stimulates tissue regeneration.*

These particularly valuable biological effects mean that the YAP laser has a broad range of potential indications (over 40 in total), including applications in endodontics, periodontics, implantology and oral surgery.

The clinical efficacy of the YAP has been widely demonstrated in a number of controlled studies exploring its effects in periodontal disease and peri-implantitis, its bactericidal potential in root canal decontamination, or its value as a means of extracting a broken instrument.

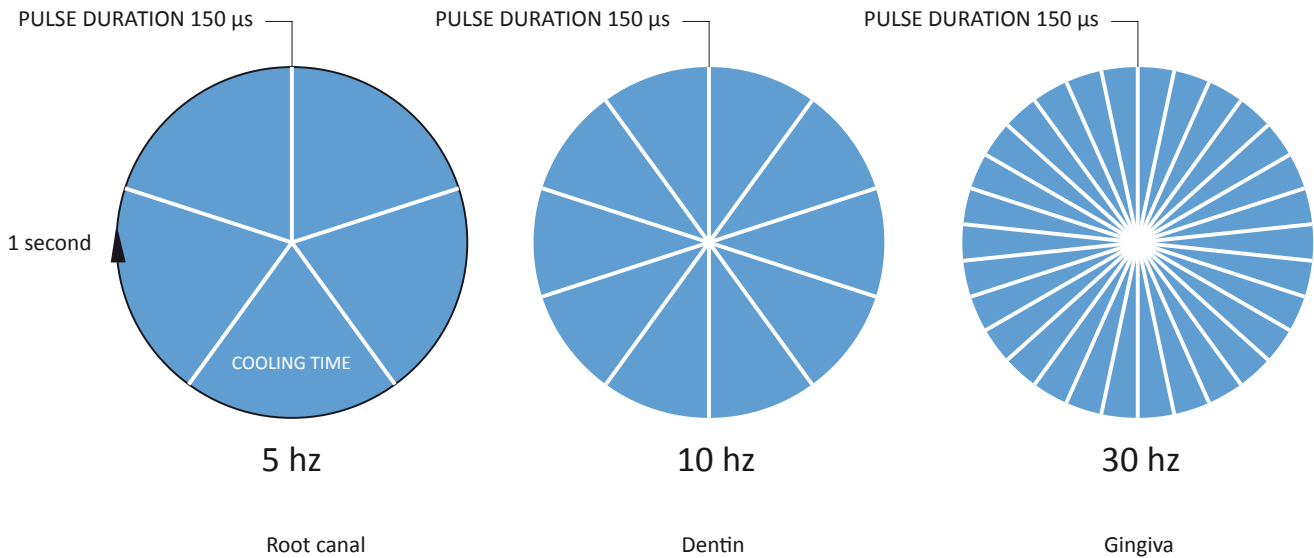




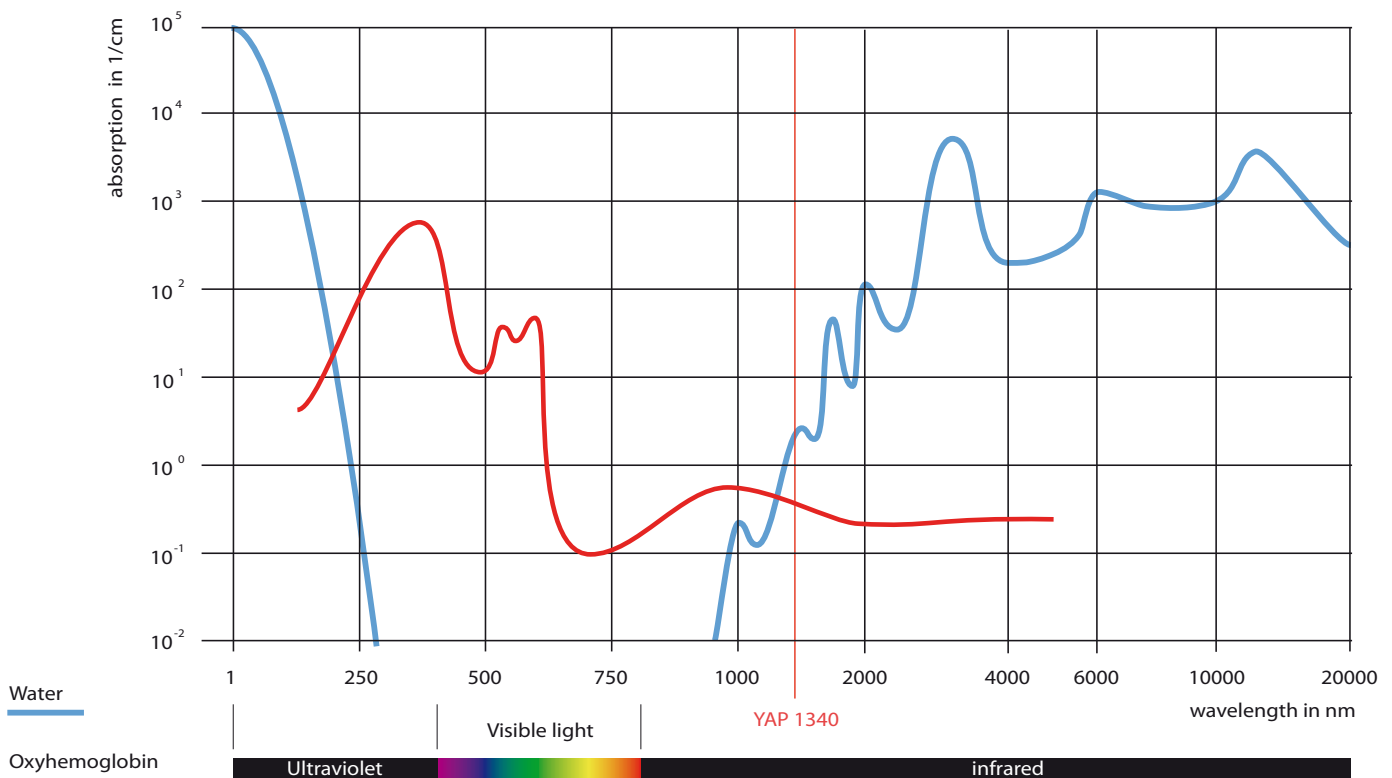
TECHNICAL CHARACTERISTICS PROVIDING SPECIFIC BIOLOGICAL EFFECTS

THE BEST COMPROMISE FOR EXCELLENT ABSORPTION IN WATER, HEMOGLOBIN, NICKEL, TITANIUM AND STEEL.

SELECTIVE, POWERFUL AND SHORT LASER PULSES TRANSMITTED BY A NARROW, FLEXIBLE OPTICAL FIBER FOR OPTIMAL TISSUE TARGETING AND PRESERVATION OF SURROUNDING AREAS.



ABSORPTION CURVE IN OXYHEMOGLOBIN AND WATER.



A PRACTICAL, ERGONOMIC, SAFE AND EASY TO USE SYSTEM

HANDPIECE:

- titanium,
- ergonomic, easy to direct,
- detachable and sterilizable.

OPTICAL FIBER:

- silica,
- flexible,
- self-stripping and biocompatible,
- comes in two diameters: 200 μm for endodontics and 320 μm for periodontics and surgery,
- fitted with a guide laser beam emitting an intensity-adjustable red light,
- knob for easy length adjustment depending on the length of the tooth canal or depth of the pocket,
- sterilizable (rapid disinfection protocol with proven efficacy),
- Quick changing fiber system for one-step fiber changing.

APPARATUS:

- compact,
- mobile (on wheels),
- self-sufficient, only requires mains electricity supply,
- extremely reliable optical laser cavity, settings are not disturbed over time or by transportation.
- simple, clear programming keyboard: three modes available depending on the tissue to be treated (gum, dentin or canal). Three power levels provided for each mode.
- limited maintenance costs, no expensive consumables or accessories.

WHOLE RANGE OF ADVANTAGES

FOR THE PRACTITIONER:

- simple in use,
- non-invasive procedures,
- conservative dentistry,
- quality of care,
- time saving,
- multiple applications in routine practice,
- possibility of performing new procedures.

FOR THE PATIENT:

- post-operative pain and numbness either completely eliminated or greatly reduced,
- reduced treatment times,
- anesthesia most often no longer required, eliminating the problem of paresthesias,
- surgery is non invasive,
- healthy teeth and tissues are better conserved,
- huge reduction in stress,
- no contraindications for hemophilic or diabetic patients.

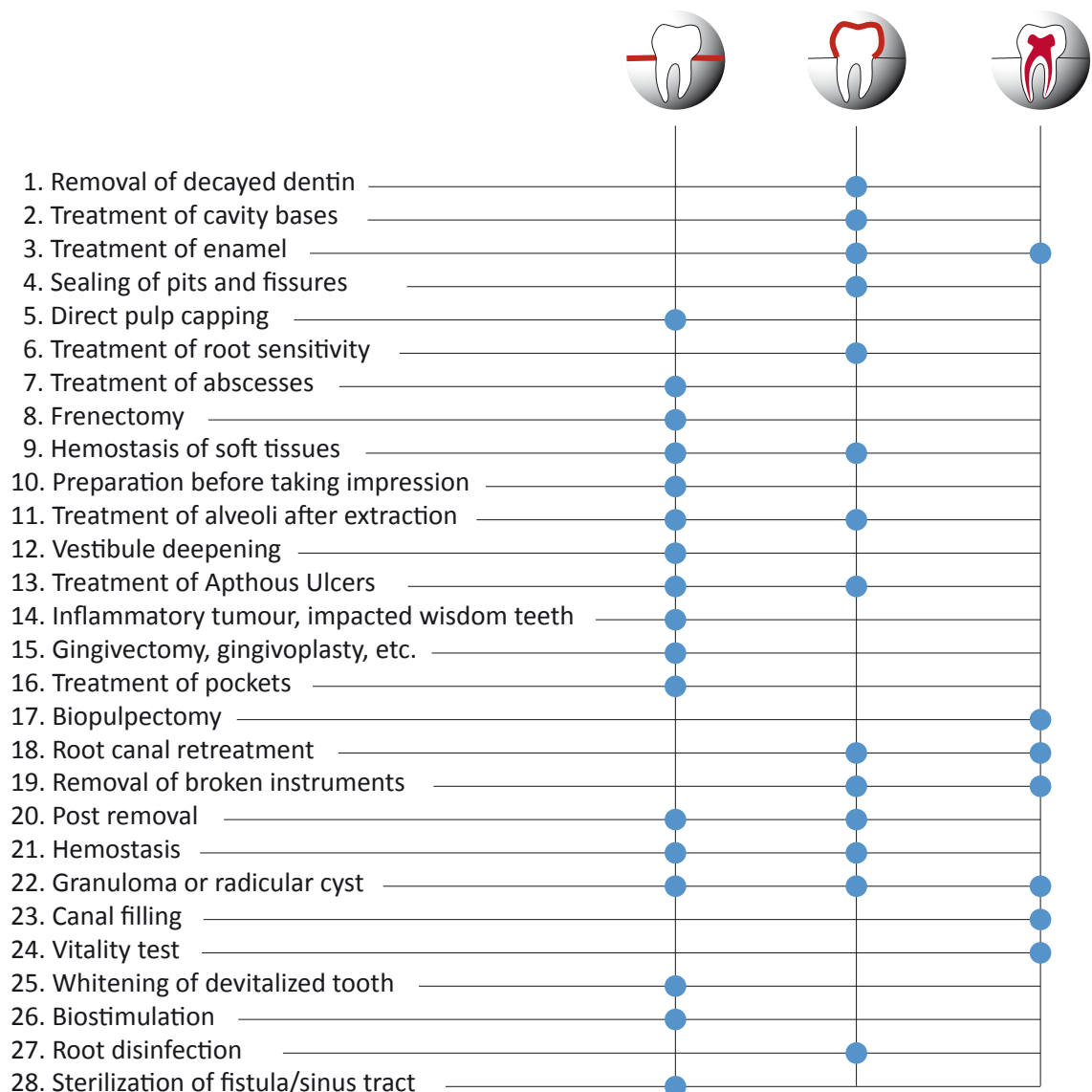


VERSATILE, EFFICIENT, PRECISE, SAFE AND ENTIRELY SUITABLE FOR CONSERVATIVE DENTISTRY, THIS LASER SYSTEM ALSO ENHANCES YOUR PATIENTS' COMFORT AND WILL RAPIDLY BECOME INDISPENSIBLE...

SEVERAL SIMPLE, EFFECTIVE AND DETAILED OPERATING PROCEDURES

We provide training in the different applications of the YAP laser either on-site at your dental surgery or, on request, at a University.

We also work closely with different research organizations including the Pitié-Salpêtrière Teaching Hospital (Paris XIII University), regularly improving our care protocols and adding to the applications of the YAP laser.



TREATMENT LASER:

Type : Nd: YAP
Wavelength: 1340 nm
Average power: 10 W
Peak power: 2.6 kW maximum
Pulse duration: 150 μ s (maximum)
Repetition rate: 5-30 Hz

BEAM TRANSMISSION:

Optical fiber: 220 μ m, 320 μ m in diameter

POWER SUPPLY:

Supply: 100-120 V AC ou 200-240 V AC
Frequency: 50-60 Hz monophasic
Current: maximum 12 A (low voltage) or 6 A (high voltage)

OPERATION AND STORAGE:

In-use temperature: 50°F to 104°F (10°C to 40°C)
Storage temperature: 14°F to 140°F (-10°C to 60°C)
Maximum in-use altitude: 10,000 feet (3 048 m)
Maximum storage altitude: 15,000 feet (4 572 m)
Relative humidity: 10% to 100%
Built-in closed circuit cooling system

Dimensions and weight: 31.5/21/18.1 inches – 119 pounds
800/534/460 mm – 54 kg

STANDARD ACCESSORIES:

2 steam-sterilizable hand pieces
Rapid optical fiber changing system
10 stainless steel tips
2 stainless steel tanks
Pair of safety glasses

