EMBRACE EVERY POSSIBILITY

ELTECH
KLASER

BLUE DERMA
FIRST BLUE LASER IN THE WORLD WITH 3 WAVELENGTHS FOR SURGERY AND THERAPY

K-Laser Blue Derma is a three-wavelength device that mainly exploits the 445 nm one. Unlike all other infra-red lasers, K-Laser is not based on water absorption but rather on the absorption of melanin and haemoglobin. This feature allows obtaining many advantages in the surgical field. Thanks to its higher energy coefficient, compared to infra-red laser, it has increased antiseptic and biostimulating properties. The 445 nm wavelength is combined with 660 nm and 970 nm ones since they support superficial and deep tissue biostimulation.

ADVANTAGES: no maintenance, low cost of consumption material and maximum safety. All surgical components can be sterilised.

K-Laser Blue Derma: 445 nm - 660 nm - 970 nm

- **445 nm**: The 445nm wavelength interacts with the molecules at systemic level and is absorbed by both haemoglobin and melanin much better than with an infra-red laser. The blue wavelength is also effective on numerous bacterial strains, thus exploiting its antiseptic properties and achieving excellent results in tissues incision, both for surgical and vascular purposes. It is also useful in treating diabetic ulcers and bedsores.

- **660 nm**: The 660nm wavelength can transfer an optimal dosage of energy to the tissue. This energy is thus stored at cellular level with subsequent increase in both bacterial proliferation and metabolism. Thus, it allows obtaining remarkable results in the healing of wounds, diabetic and vascular ulcers.

- **970 nm**: The 970nm wavelength is absorbed by the water contained in our body; most of such energy is turned into heat. The deep layers of tissues thus become localised heat points able to generate temperature gradients at cellular level and to stimulate the local microcirculation thanks to the oxygen supply provided by this wavelength.
In the Therapeutic field, **K-Laser Blue Derma** uses several pulse frequencies through dynamic stages in order to produce a combination of: analgesia, reduction in inflammation, biostimulation and antisepsis.

In surgery, the three wavelengths can be combined, thus increasing the effectiveness of surgical incisions as well as haemostatic, biostimulating and antiseptic effects.

**EFFECTIVE in both Surgery and Therapy**
**K-LASER BLUE DERMA**
Advanced Technology

**K-Laser Blue Derma** intuitive software is quick and accurate and easily guides the physician in all the treatments available. The parameters that determine each stage of the treatment, such as wavelength, energy, time, power and frequency, are automatically managed in an accurate and meticulous way, despite leaving the operator free to easily create new personalised protocols.
Within the electromagnetic spectrum and among the non-ionising radiations, the blue wavelength is the most powerful in terms of energy: this translates into several benefits for the treated tissues.
K-Laser Blue Derma is characterised by an interface that allows choosing from several treatments, thus ensuring unprecedented accuracy of incisions in the surgical field. The “Blue” 445 nm wavelength can also be combined with the infra-red 970 nm one, thus making for a better ablative effect (DISB) or increased biostimulating properties (ISB). These two modalities are K-Laser patents and make for a unique and exclusive surgical performance.

**Dermathological Surgery**
- Light nevus
- Black benign nevus
- Seborrheic keratosis
- Warts
- Papilloma
- Condiloma
- Pendulous fibroma
- Biopsy

**Vascular Surgery**
- Teleangectasias
- Legs teleangectasias
- Nose varicose veins
- Ruby angioma
- Spider angioma
- Flat angioma
- Cavernous small angioma
- Endovascular

**Podiatry**
- Onychomycosis
- Ingrown nail

**Dermathological Treatments**
- Photorejuvenation
- Stretch marks
- Scars
- Resurfacing

**Contact Surgery**
- Age/solar spots
FIELDS OF APPLICATION

Therapy

**K-Laser Blue Derma** intuitive software operates following more dynamic stages. Therefore, it allows modulating the parameters of the selected program, such as wavelength, frequency, energy and power. Using only one device, this feature guarantees a wide range of highly efficient medical applications, through tissue repair and a reinforced immune system.

### Dermatological Therapy
- Acne Vulgaris
- Wounds healing
- Diabetic ulcer
- Lichen planus

### Pain Therapy
- Chronic pain
- Severe pain
- Inflammation
- Oedema and inflammation

### Therapy of the Tissues
- Mucositis
- Dermatitis
- Infections
- Reinforced immune response
- Bone matrix stimulation
- Lesion detector
K-LASER BLUE DERMA
Excellence and maximum Performance in Surgery

K-Laser Blue Derma, compared to surgical devices that use infra-red wavelengths, uses the blue light, thus ensuring high-level surgical performance, thanks to the reduction of thermal damage and to its peculiar interaction with haemoglobin. Thanks to these features, it guarantees increased cutting effectiveness, much higher than the one obtained with infra-red lasers, and the complete absence of water absorption help drastically reduce the overheating of the surrounding tissues.

K-Laser Blue Derma guarantees ideal visibility of the operative area thanks to immediate haemostasis. In contact surgery, the use of special sterilisable fibres prevent possible cross-infections while guaranteeing a clean and bloodless operative area.
K-LASER BLUE DERMA
Clinical studies

**K-Laser Blue Derma** can be used effectively to treat skin injuries and imperfections thanks to its high technology that consists of several interchangeable hand-pieces and thanks to its dynamic software that allows choosing from numerous application fields. Clinical results are the basis of the effectiveness of **K-Laser treatments** in Surgery:

**Dermatological Surgery**

- **Light nevus**
  - Before
  - After

- **Papilloma**
  - Before
  - After

- **Light nevus**
  - Before
  - After

- **Seborrheic keratosis**
  - Before
  - After

- **Tuberous nevus**
  - Before
  - After

- **Fibroma pendulum**
  - Before
  - After
K-LASER BLUE DERMA
Clinical studies

Vascular Surgery

- **Angioma**
  - Before
  - After

- **Nose Telangiectasias**
  - Before
  - After

- **Telangiectasias**
  - Before
  - After

- **Telangiectasias**
  - Before
  - After

- **Rosacea**
  - Before
  - After

- **Telangiectasias**
  - Before
  - After
K-LASER BLUE DERMA
Clinical studies

Dark Spot

- Solar-age spots
  Before
  After

Dermatological Treatments

- Acne Vulgaris
  Before
  After

- Solar-age spots
  Before
  After

- Acne Vulgaris
  Before
  After

- Solar-age spots
  Before
  After

- Photorejuvenation
  Before
  After
K-LASER BLUE DERMA
K-Laser Dynamic Therapy

Effects on metabolic processes

Angiogenesis and neovascularity
The laser increases tissues oxygenation, thus accelerating healing processes.

Cartilage production
The laser increases the production of chondrocytes and collagen, thus making for higher deposition of cartilage and improving articular function.

Bone neoapposition
The laser promotes the proliferation of osteocytes as well as the reshaping of the extracellular bone matrix, thus accelerating tissue repair.

Muscle regeneration
The laser repairs damaged muscle fibres and activates satellite and myogenic cells, thus promoting the regeneration of muscle tissue.

Bone neoformation
The laser promotes the proliferation of osteocytes as well as the reshaping of the extracellular bone matrix, thus accelerating tissue repair.

Nerve regeneration
The proliferation of growth factors mediated by laser therapy promotes nerve regeneration as well as the formation of myelin, which are fundamental healing processes.

Collagen production
Optimal alignment and remodelling of collagen fibres reduces the formation of keloids and increases tissues elasticity.

Oedema and inflammation
The laser acts on inflammation mediators, such as macrophages, neutrophils and lymphocytes, thus accelerating the healing of inflammatory processes.

Cartilage production
The laser increases the production of chondrocytes and collagen, thus making for higher deposition of cartilage and improving articular function.

Effects on metabolic processes

Angiogenesis and neovascularity
The laser increases tissues oxygenation, thus accelerating healing processes.

Collagen production
Optimal alignment and remodelling of collagen fibres reduces the formation of keloids and increases tissues elasticity.
K-Laser Dynamic Therapy is an excellent multidisciplinary therapy

K-Laser Dynamic therapy uses several pulse frequencies to produce a combination of analgesia, inflammation reduction, biostimulation and antimicrobial effect, thus accelerating the regeneration of tissues and increasing the energy available to cells. Cells can thus absorb nutrients more quickly as well as eliminate waste substances. As a result of the exposition to laser light, the cells that constitute tendons, ligaments and muscles are repaired more quickly.

K-Laser Dynamic Therapy has antiedemics effects because it produces vasodilation and because it activates the lymphatic drainage system: this results in swelling reduction.
K-LASER BLUE DERMA
Clinical studies in Pain Therapy

Optimum effectiveness in: Physiotherapy, Rehabilitation, Traumatology and Post-Surgery Therapy

K-Laser experience acquired in analgesic therapy relates to several both severe and chronic inflammatory and pain conditions. The painful conditions that are mainly treated are the ones involving the cervical and lumbar spine, the one of the shoulder, the elbow, the wrist, the hand, the hip, the knee and the foot. In Traumatology and Rehabilitation, it is used to treat the tibio-tarsus sprain, muscle contusion and tears, tendinitis and inflammation of ligaments.

Anti-inflmatory effect

Hallux valgus

K-Laser therapy has a beneficial effect on pain receptors since it increases their threshold and releases endorphins. Pain is also reduced thanks to the anti-inflammatory and anti-oedema effect.

An example of this is the treatment of hallux valgus, where pain and inflammation are managed effectively.

Oedema and congestion

K-Laser therapy has an anti-oedema effect because it reduces vasodilation and because it activates the lymphatic drainage system (draining the oedematous areas). Thus, swelling caused by traumas and/or inflammation is reduced.
K-laser therapy significantly increases the formation of new capillaries, thus accelerating the healing process of damaged tissues, healing wounds and reducing the damaged area. In addition, benefits include angiogenesis increase, which causes vessels to dilate temporarily with the augmentation of the blood vessels diameter. The increased supply of blood in the damaged area facilitates healing and reduces pain.

**Wound healing**

Effects linked to the inhibition of bacterial proliferation and to increased cellular growth that allows achieving excellent results in terms of healing of **wounds, ulcers and bedsores**.

An example of this is the bedsore in the sacral area for which **K-Laser therapy** is used to biostimulate the tissues.
K-LASER BLUE DERMA
Clinical studies in Dermatological Therapy

Diabetic foot

**K-Laser therapy** increases the production of specific enzymes for the transport of oxygen, thus facilitating the repair and the regeneration of damaged tissues.

Ulers

Diabetic ulcer affects cutaneous and subcutaneous tissues and is not likely to heal spontaneously. Diabetic ulcers affecting the foot are not easy to treat and often need invasive and painful treatments as well as careful assessment in terms of angiology and histopathology. **K-Laser therapy** can be very useful thanks to its ability to act on tissue biostimulation, thus favouring the healing process of damaged tissues.

Ulcerated wounds in diabetic patients

- **Ulcerated amputation stump ulcer** is localised at apical level
- **Neuropathic ulcer**

Ulcerated wound localised on the fifth metatarsal head caused by a sensory neuropathy.

- **Neuropathic ulcer**

Before | After
--- | ---
Before | After
Before | After
In dermatological therapy excellent results are obtained for the following conditions: onychomycosis, hell spines, tendinitis, plantar fascitis and metatarsalgia.

Onychomycosis

K-Laser therapy initially guarantees a reduction of the inflammation and, afterwards, the eradication of the fungus infection with complete disinfection of the treated area.
Effectiveness of the reinforced immune-mediated response

K-Laser therapy increases the immune-mediated response in case of disease processes. Through a series of biochemical and cellular processes, this allows the organism to properly defend itself.

Several analysis carried out at the ICGEB (International Centre for Genetic Engineering and Biotechnology, Trieste, Italy), have proved that this therapy can reinforce the immune-mediated response and can promote vascular normalisation [Ottaviani et al. Laser Therapy Inhibits Tumor Growth in Mice by Promoting Immune Surveillance and Vessel Normalization. EBioMedicine. 2016 Jul 25. pii: S2352-3964(16)30340-1. doi: 10.1016/j.ebiom.2016.07.028].
Tissue injuries

**Oral mucositis**

Onco-haematologic *paediatric patient* treated with chemotherapy. The patient presents ulcers and erythema on the lips and inside the cheeks. Treated with 4 sessions of *K-Laser therapy*.

**Dermatitis**

Oncology patient with breast cancer who was treated with radiotherapy. The patient presents severe dermatitis in the inframammary crease. Treated with 6 sessions of *K-Laser therapy*.

**Scleroatrophic lichen**

Patient with chronic recurrent skin condition with wounds in the breasts area. After 9 sessions of *K-Laser therapy* the patient’s symptoms and marks have significantly improved.

**Osteosynthesis**

The *K-Laser therapy* used helped accelerate the healing process and restored the functionality of hands affected by metacarpus fractures, without side effects.

**Actinic keratoses**

Patient with actinic keratoses treated with *K-Laser therapy* who presents significant skin improvements.
K-LASER BLUE DERMA
Accessories

Revolutionary innovation for advanced surgery and laser therapy

Hand-piece for non contact surgery
Art. MP386

Set of non-contact surgical spacers
Art. MP387A-MP387B-MP387C-MP387D

Endo hand-piece
Art. MP399 (optional)

Optic fibre 200µm Art. 6255678 (optional)
Optic fibre 320µm Art. 6255629
Sterilizable

Surgical fiber sterilizable
Optic fiber 320µm Art. MP021HA (optional)
Optic fiber 400µm Art. MP021R (optional)
Optic fiber 600µm Ball Tips Art. MP430 (optional)

Frax hand-piece
Art. MPS10 (optional)

Hand-piece for contact surgery
Art. MP384

Sterilizable sleeve for contact surgery
Art. MP385

Sterilizable tip
Art. MP419
K-LASER BLUE DERMA
Accessories

- Optic hand-piece for therapy
  Art. MP383

- ORL optic for therapy
  Art. MP388

- Hand-pieces case holder
  series K-Laser Blue Derma
  Art. IM023

- K-Laser case
  Art. IM017A
  (optional)

- Wi-Fi Pedal
  Portable Art. PF067

- Fixed Wi-Fi pedal
  Art. 62566841
  (optional)

- Protective goggles for the patient
  for aesthetic applications
  Art. PF002

- Protective glass goggles
  for the patient
  Art. 6541523
  (optional)

- Protective goggles for
  both the operator and
  the patient
  Art. PF002P

- Trolley with carrier for Tips
  Art. PF095
  (optional)

- K-Laser Blue Derma trolley
  with smoke extractor
  Art. PF093
  (optional)

- High-power led lamp
  Art. PF096
  (optional)
**K-Laser Blue Derma**

K-Laser has chosen to use semiconductors due to their advantages compared to the other technologies available on the market. This makes K-Laser the brand of the most reliable compact devices in the world.

<table>
<thead>
<tr>
<th>Wavelength</th>
<th>K-Laser Blue</th>
<th>KTP</th>
<th>Diode Laser</th>
<th>Nd:YAG laser</th>
<th>Co2</th>
</tr>
</thead>
<tbody>
<tr>
<td>445 nm + 660 nm 970 nm</td>
<td></td>
<td>532 nm</td>
<td>810 to 980 nm</td>
<td>1064 nm</td>
<td>10600 nm</td>
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<table>
<thead>
<tr>
<th>Model type</th>
<th>Compact</th>
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<th>Compact</th>
<th>Extra large model</th>
<th>Extra large model</th>
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<td>Maintenance costs</td>
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<td>△</td>
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**Instructions**

<table>
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<th>Surgery (soft tissues)</th>
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<th>△</th>
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<tbody>
<tr>
<td>Surgery (dermatology)</td>
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<td>△</td>
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<td>△</td>
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<td>Haemostasis</td>
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<td>△</td>
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<td>Biopsy</td>
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<td>△</td>
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</tr>
<tr>
<td>Endovascular</td>
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<td>△</td>
<td>△</td>
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</tr>
<tr>
<td>Vascular face</td>
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<td>△</td>
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<tr>
<td>Vascular legs</td>
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<td>Bacterial infections</td>
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<tr>
<td>Photobiomodulation</td>
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<td>Dark spots</td>
<td>▲</td>
<td>△</td>
<td>△</td>
<td>△</td>
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<td>Acne active phase</td>
<td>▲</td>
<td>△</td>
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<td>Diagnostics</td>
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<tr>
<td>Rejuvenation</td>
<td>▲</td>
<td>△</td>
<td>△</td>
<td>△</td>
<td>△</td>
</tr>
</tbody>
</table>

▲ = Suitable  △ = Partially suitable  — = Non suitable
K-Laser Blue Derma has been designed in compliance with directives 93/42/EEC and 2007/47/CE about medical products. According to the norms in force, the device is classified as follows:

<table>
<thead>
<tr>
<th>Source type</th>
<th>Integrated semiconductor laser module</th>
</tr>
</thead>
<tbody>
<tr>
<td>Laser system</td>
<td>Class IV (compliant with IEC 60825-1)</td>
</tr>
<tr>
<td>Product class</td>
<td>Class IIb (compliant with directive 93/42/EEC)</td>
</tr>
<tr>
<td>Wavelength (nm)</td>
<td>445 nm ± 5nm; 660 nm ± 10 nm; 970 nm ± 15 nm</td>
</tr>
<tr>
<td>Overall power (W)</td>
<td>13</td>
</tr>
<tr>
<td>Emission Mode</td>
<td>CW (continuous emission), pulsed, modality ISB, modality DISB</td>
</tr>
<tr>
<td>Protection of liquids penetration</td>
<td>Unity: IP20; pedal (non-waterproof cover): IPX5 (Compliant with CEI EN 60601-1)</td>
</tr>
<tr>
<td>Insulation Class</td>
<td>Class II, type B (compliant with CEI EN 60601-1)</td>
</tr>
<tr>
<td>Steering beam</td>
<td>660 nm ± 10 nm, max. 1mW</td>
</tr>
<tr>
<td>DNRO</td>
<td>12.46 m max</td>
</tr>
<tr>
<td>Laser Activation</td>
<td>Wireless pedal</td>
</tr>
<tr>
<td>Power supply</td>
<td>Rechargeable battery and external power supply 100 - 240 VAC, 47 - 63 Hz</td>
</tr>
<tr>
<td>Display</td>
<td>Full color, LCD touchscreen</td>
</tr>
<tr>
<td>Handpiece</td>
<td>Interchangeable sterilisable handpieces in special metal</td>
</tr>
<tr>
<td>Fibers</td>
<td>200µm 320µm Multiuse sterilizable</td>
</tr>
<tr>
<td>Weight</td>
<td>1300 g (including the handpiece and the rechargeable battery)</td>
</tr>
</tbody>
</table>