Hilterapia®

Intensity beyond power

Hilterapia®

ASA LASER

Research and Therapeutic Solutions

ASA
Research and Therapeutic Solutions.

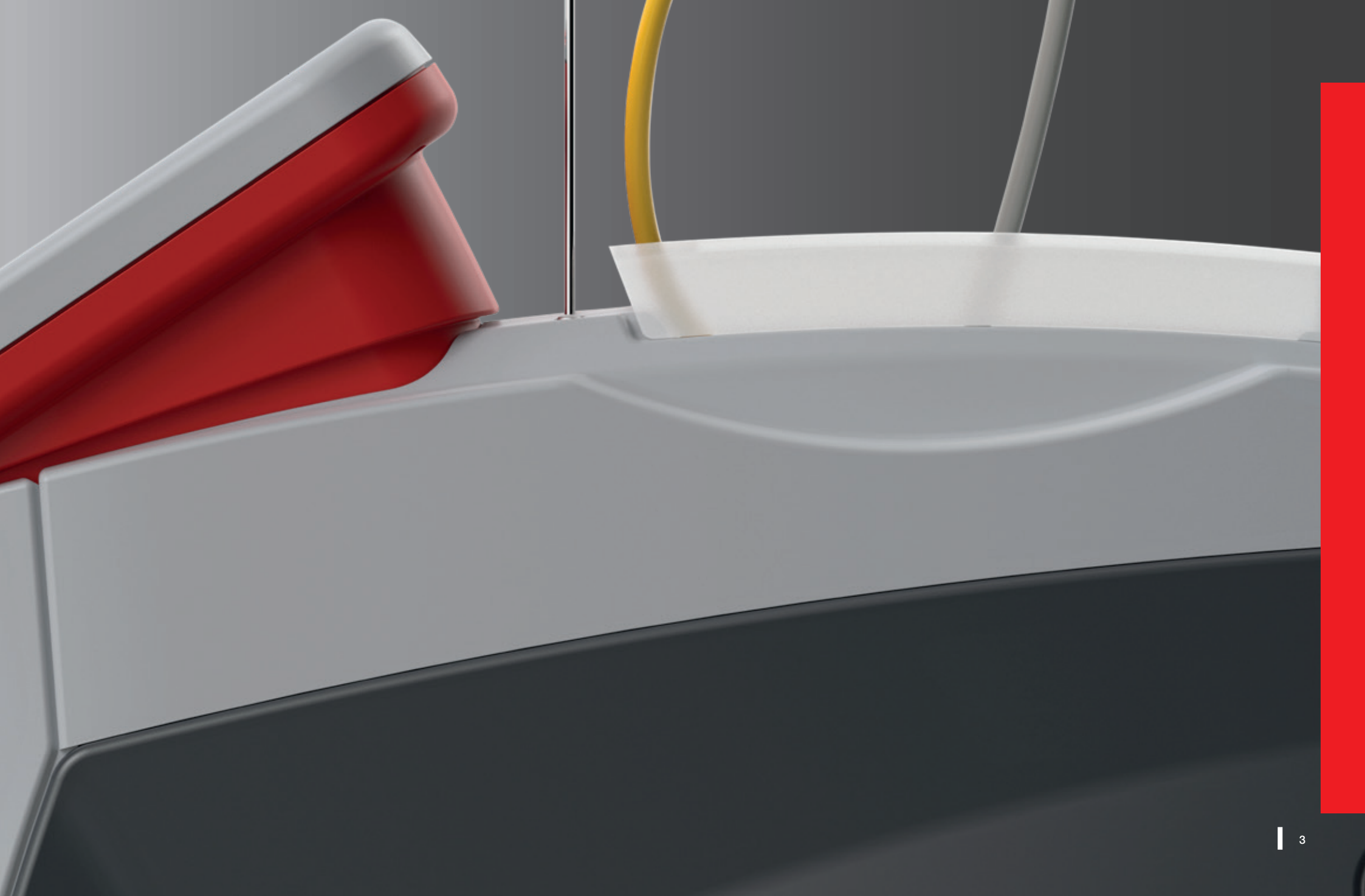
Since **1983** ASA wants to become the international landmark in **laser therapy** and **magnetotherapy** for multidisciplinary uses: from **Physiotherapy** to **Physical Rehabilitation**, passing through Pain Management, **Sports Medicine** and **Veterinary Medicine**.

In **2003** ASA becomes part of **El.En. Group**, an Italian multinational corporation among the world's leading manufacturers of lasers for medicine, industry, conservation and restoration of artistic heritage.

Research and innovation are the main investment channels and the foundations on which to build an **ethical, sustainable and valuable growth**.

ASA LASER
Research and Therapeutic Solutions

ELEN™
THE FUTURE IN A BEAM

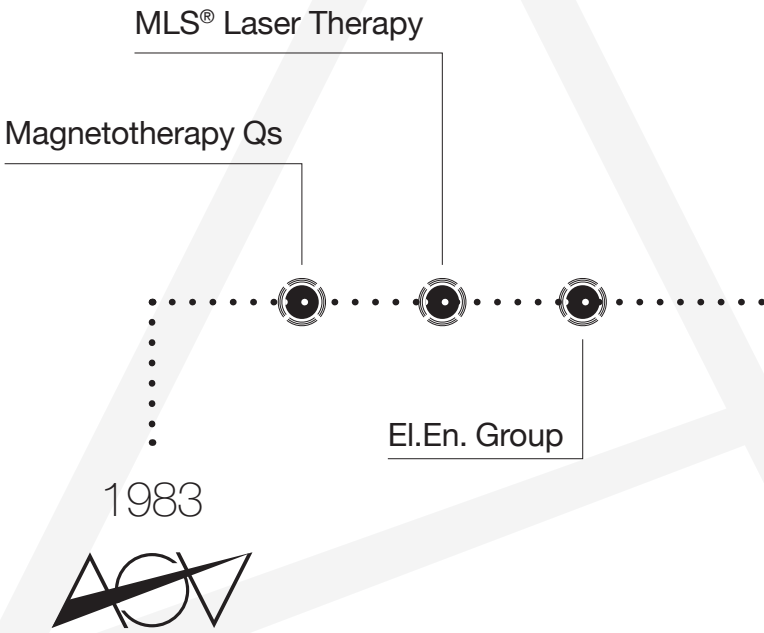


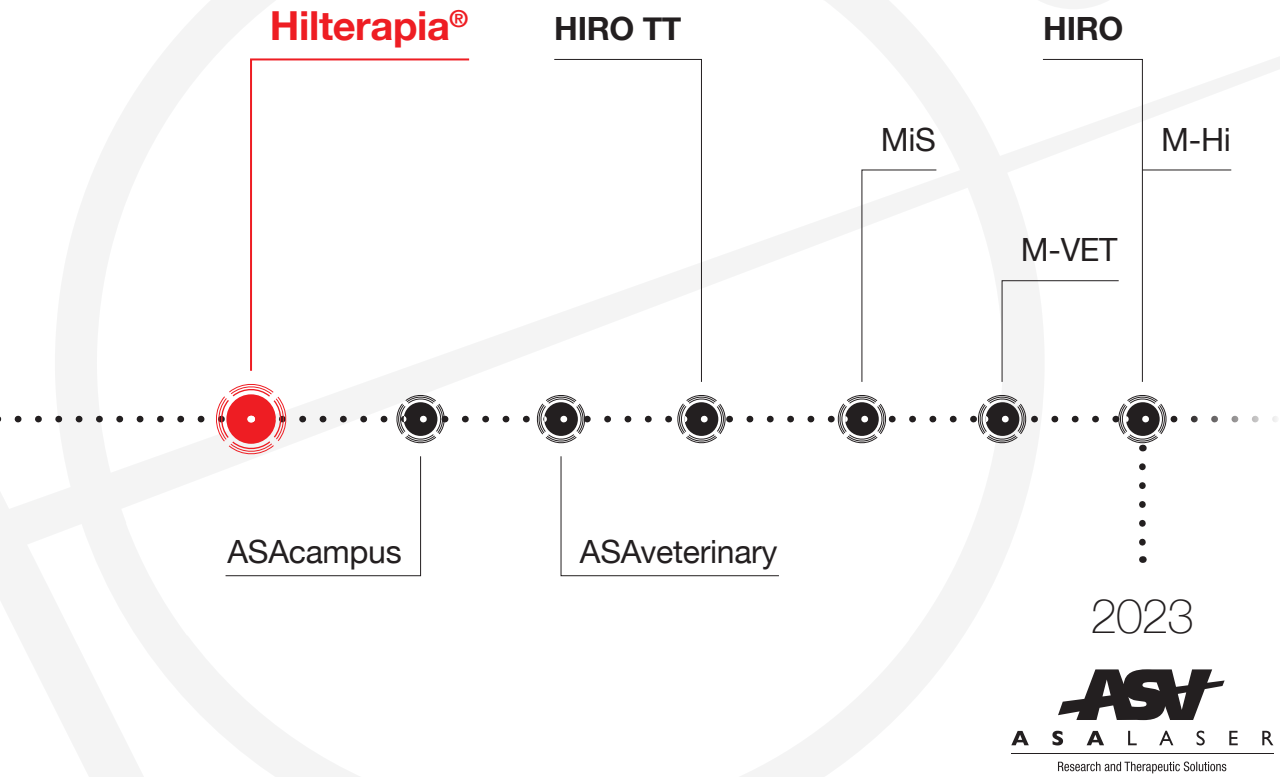
Hilterapia®
Science and Technology at the service of healthcare providers.

Hilterapia® is a worldwide unique therapeutic technique based on high-intensity laser emission.

After 20 years from its debut, Hilterapia® maintains a position of utmost importance thanks to the numerous **scientific and clinical results** obtained in the treatment of **painful pathologies** and **degenerative joint and bone conditions**.

A rapid and safe Therapeutic Solution open to innovation.





ASA LASER
Research and Therapeutic Solutions

Hilterapia®
Innovation based on Tradition.

From the tradition of Hilterapia® to the implementation of several technological innovations in order to **constantly improve performances, reliability, efficacy and safety**.

Its unique blend of features allows Hilterapia® to be **strikingly effective** on the **painful symptoms** and on the **articular mobility**, even on **deep chronic conditions**.

Hilterapia®

Discover more

United States patents N°:
US 6,527,797 B1
US 8,480,719 B2

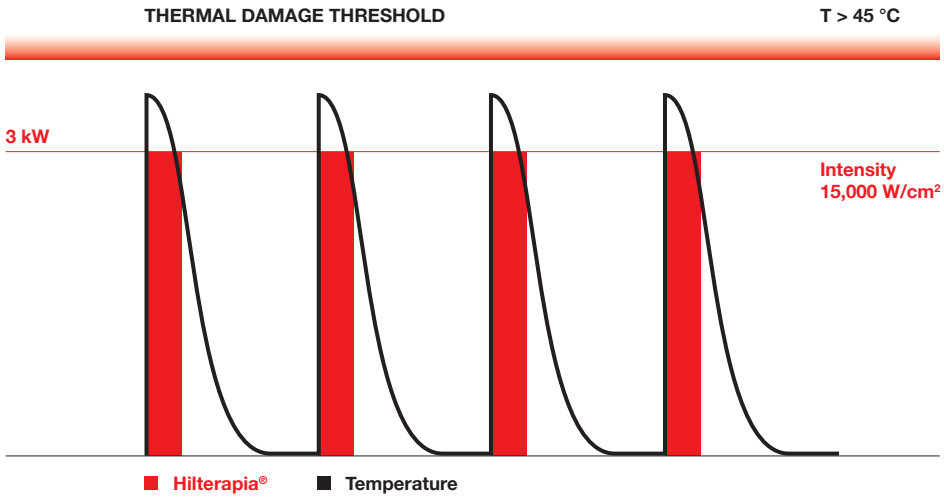
Hilterapia® is a patented technology that features:

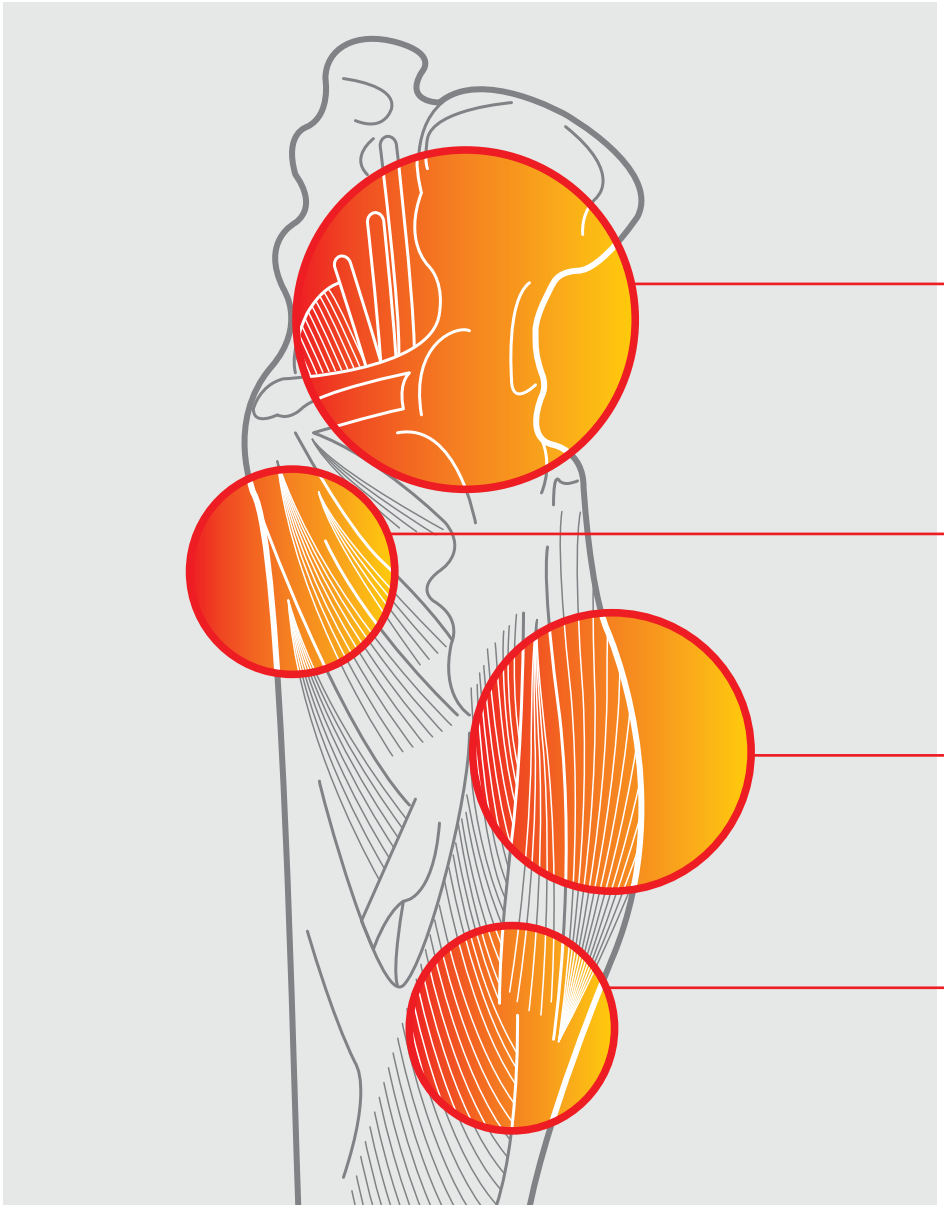
- Nd:YAG source
- Pulsed emission modality
- 1064 nm wavelength
- Peak Power of 3,000 W
- Remarkably high intensity of 15,000 W/cm^2

With Hilterapia®, the healthcare professional can **immediately start the rehabilitation program**, providing great benefits to the patient.

Intense, deep, safe
Unique.

Thanks to the short duration of the pulse and its very **high intensity**, Hilterapia® generates an important **photomechanical effect** capable of triggering a series of biological signals and effects at cellular, tissular and structural levels. **Hilterapia® promotes and modulates the activation of lymphatic drainage, microcirculation, tissue repair and healing processes.**





Target Tissues
Hilterapia® effects.

BONE & CARTILAGE

- Reduces articular inflammation and favors the repair processes against degenerative joint conditions, such as osteoarthritis.
- Increases the Bone Mineral Density (BMD) to counteract osteoporosis and osteopenia symptoms.

MUSCLE

- Rapidly resolves contractures and trigger points, producing an intense analgesic effect.
- Speeds up the healing processes of muscle strains.

TENDON & LIGAMENTS

- Reduces temperature alteration, induced by local inflammation.
- Promotes repair processes in tendon and ligament structures.
- Reduces pain and favors the restoration of functionality.

CUTANEOUS TISSUE

- Induces a faster and more homogenous restoration of the extracellular matrix (ECM), which constitutes one of the principal components of skin dermis.
- Encourages the supply of oxygen and nutrients through moderate local vasodilation.
- Improves endothelial function and promotes neoangiogenesis.

Reparative & Regenerative Therapy.

PHOTOMECHANICAL EFFECT

- Proven by scientific publications and clinical results, Hilterapia® effectiveness in regenerative treatments is strongly related to its ability to induce a photomechanical stress deeply affecting the behavior of many types of mammalian cells.
- The strength of this effect is directly proportional to the laser emission intensity and inversely proportional to the pulse duration.

EFFECTS AT CELLULAR LEVEL

ACTION INSIDE THE CELLS

- **CYTOSKELETON REMODELLING (RESHAPING)**

Reorganization of cytoskeleton network, observed in fibroblasts, chondrocytes and endothelial cells.
[Monici, Basile et al., 2008; Monici et al., 2009]

ACTION ON THE CELLS

- **ANTIGRAVITATIONAL TISSUE DIFFERENTIATION**

Induction of differentiation towards chondrocyte/osteoblast phenotypes, observed in human mesenchymal stem cells (comparable to those induced by hypergravity).
[Monici et al., 2008]








Monici M, Romano G, Cialdai F, Fusi F, Marziliano N, Benvenuti S, Cellai I, Egli M, Cogoli A. Gravitational/mechanical factors affect gene expression profile and phenotypic specification of human mesenchymal stem cells. Journal of Gravitational Physiology, 2008, 15:191-192. ISSN:1077-9248.

Monici, M., Basile, V., Cialdai, F., Romano, G., Fusi, F., & Conti, A. (2008, May). Irradiation by pulsed Nd: YAG laser induces the production of extracellular matrix molecules by cells of the connective tissues: a tool for tissue repair. In Biophotonics: Photonic solutions for Better Health Care (Vol. 6991, pp. 485-494).

Monici M, Cialdai F, Fusi F, Romano G, Pratesi R. Effects of pulsed Nd:Yag laser at molecular and cellular level - a study on the basis of Hilterapia®. Energy for Health, 2009, 3:27-33.

Monici M, Cialdai F, Romano G, Fusi F, Egli M, Pezzatini S, Morbidelli L. An in vitro study on tissue repair: impact of unloading on cells involved in the remodelling phase. Microgravity, Science and Technology, 2011, 23: 391-401. ISSN: 0938-0108, doi: 10.1007/s12217-011-9259-4.

EFFECTS OUTSIDE THE CELLS

ORDERED FIBRONECTIN FORMATION – A TEMPLATE FOR COLLAGEN ASSEMBLING

- Induction of formation of ordered arrays of fibronectin fibrils. They have a very important role in the formation of a functional tissue and regulate many cell functions, as growth and differentiation, adhesion and migration, which are involved in tissue repair.

[Monici, Basile et al., 2008]

ECM MOLECULES SYNTHESIS

- Increase in production of ECM by cells of connective tissues (fibroblasts and chondrocytes), favoring tissue repair and regeneration.

[Monici, Basile et al., 2008]

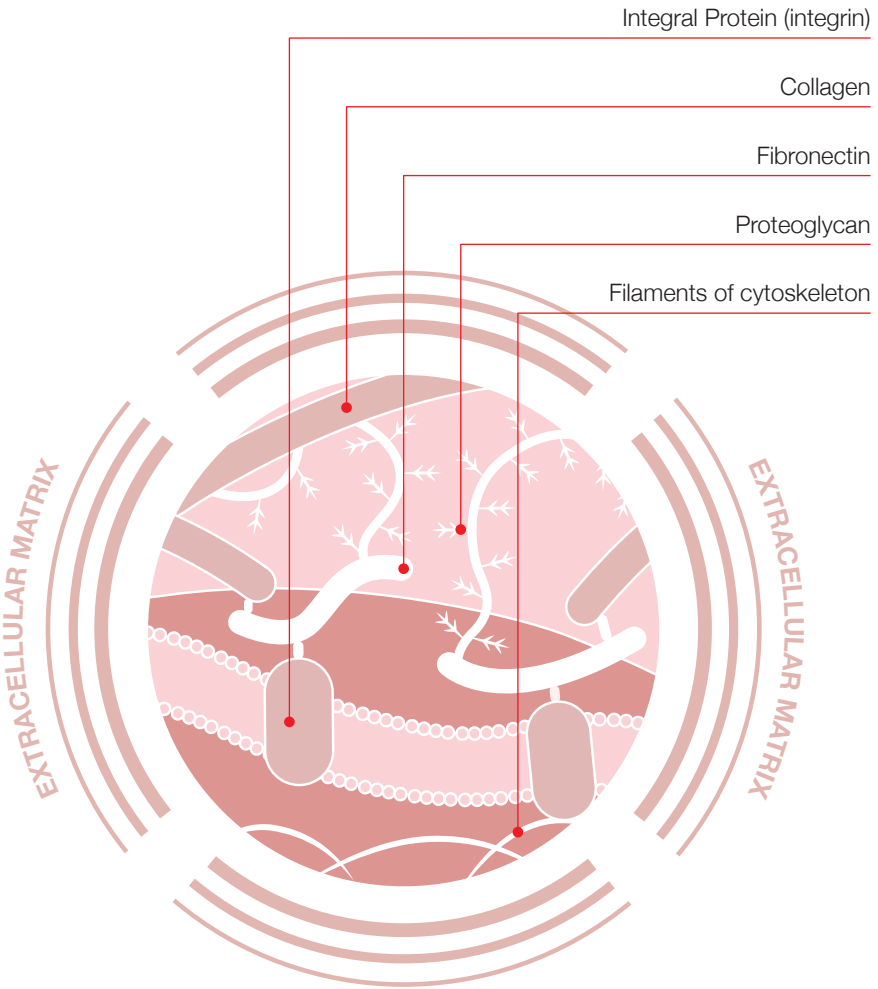
FORMATION OF NEW VESSELS

- Induction of an ordered cell monolayer formation with important consequences on angiogenesis (formation of new vessels) and on endothelial function (in particular on blood-tissue exchange).

[Monici et al., 2011]

MODULATION OF INFLAMMATION

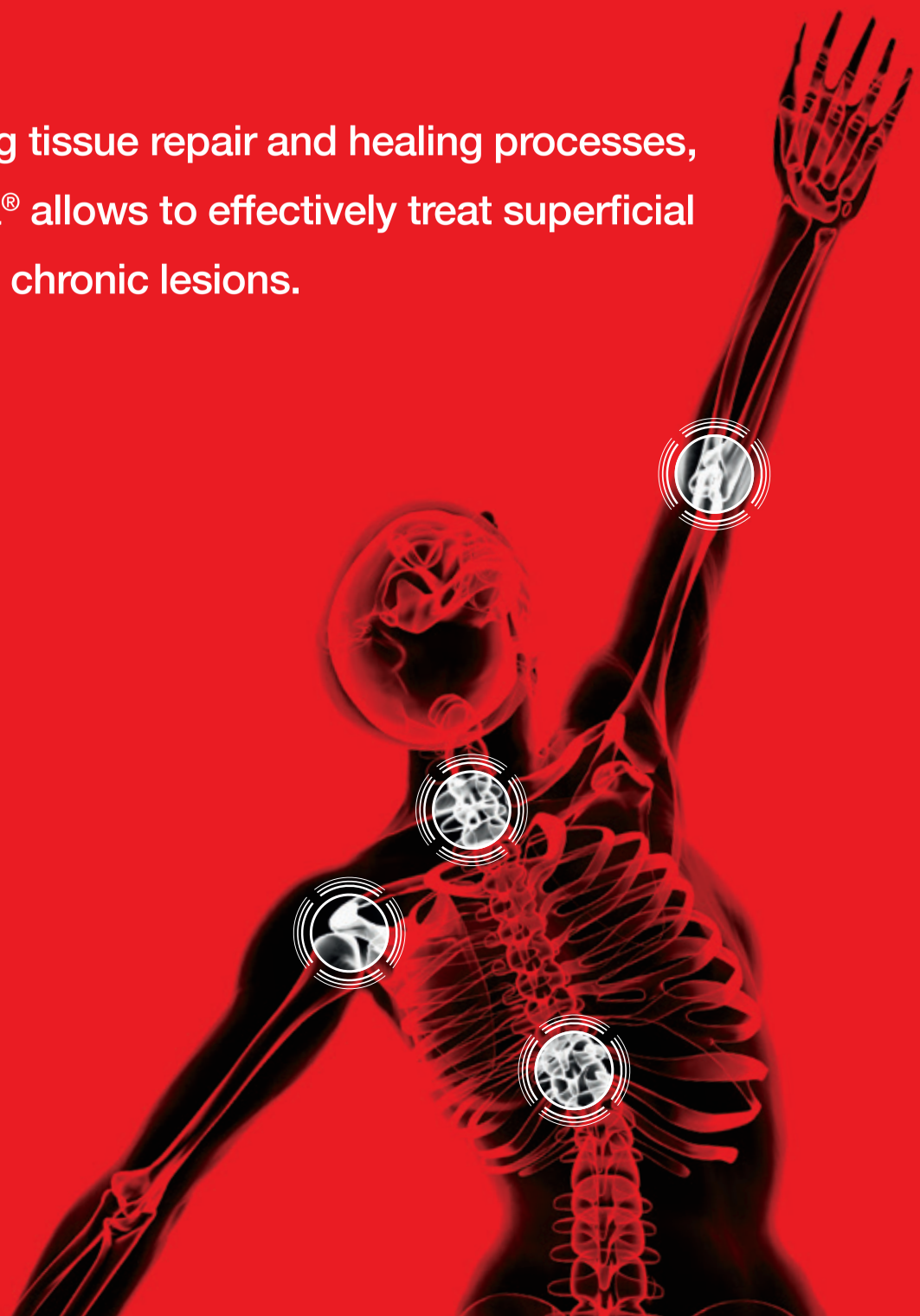
- Modulation of inflammation promoting reparative, regenerative and remodelling processes. For a faster & better tissue repair action.



Hilterapia®
Medical Indications.

Hilterapia® is ideal for the treatment of the most common painful pathologies of the musculoskeletal system.

Promoting tissue repair and healing processes, Hilterapia® allows to effectively treat superficial and deep chronic lesions.



OSTEOARTICULAR CONDITIONS

- Osteoarthritis [1]
- Osteoporosis/Osteopenia [2]

SOFT TISSUE MUSCULOSKELETAL CONDITIONS

- Tendinopathies [3]
- Neck pain [4]
- Low back pain [5]
- Temporomandibular disorders
- Carpal Tunnel Syndrome
- Plantar fasciitis

TISSUE REPAIR [6]

- Wounds
- Muscle strains

1 From mild to moderate OA stages (up to grade 3) with high level of clinical evidence on knee, moderate on hand and cervical spine.
2 Moderate-high level of evidences in increasing the BMD in spine and hip regions.
3 Moderate, moderate-high level of evidences on shoulder (stage I-II SAIS, calcific tendonitis), elbow (epicondylitis), ankle (Achille's tendinopathy) and wrist (tenosynovitis).
4 Evidences on NP caused by myofascial pain syndrome, postural pain, sprain trauma, cervical spondylosis, disc herniation.
5 Evidences on LBP caused by nonspecific low back pain, disc herniation.
6 Evidences on grade 1 muscle strains, surgical wounds, deep pressure ulcers and diabetic foot ulcers.

Safe & Effective
Therapy.

While being **absolutely safe** for the patient, it provides **extremely effective** action. The efficacy of Hilterapia® in stimulating tissue regeneration and tissue healing has been demonstrated in:

- Surgical wound healing [1]
- Diabetic ulcers [2]
- Neurogenic ulcers [3]

which are generally non healing or long lasting and disabling conditions.

Although regenerative and proliferative effect is evident in skin lesions, **regenerative properties are of main relevance also in rehabilitation treatments**, favouring healing of:

- Non-directly visible soft tissues lesions (muscles, tendons, ligaments, etc) [4]
- Osteoarticular conditions of degenerative or traumatic origin, promoting chondrogenesis and slowing down arthrosic joint progression [5]

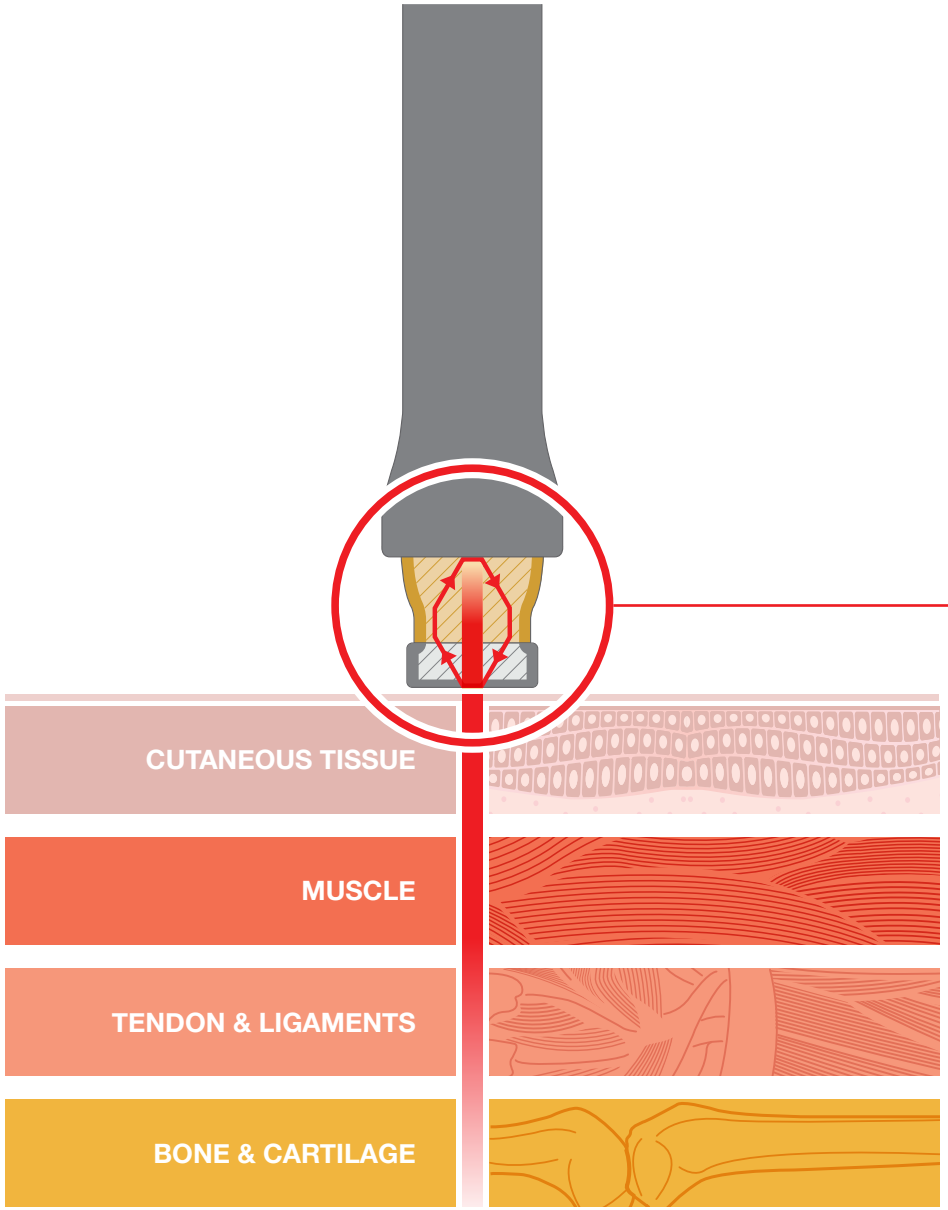
1 Thabet AAEM, Mahran HG,Ebid AA, Alshehri MA. Effect of pulsed high intensity laser therapy on delayed caesarean section healing in diabetic women. J. Phys. Ther. Sci. 2018, 30: 570–575.

2 Ebida AA,Thabet AA, Helal OF. Effect of pulsed high intensity Nd:YAG laser in treatment of chronic diabetic foot ulcer. Energy for Health 2011, 7: 25-30.

3 Ebid A, El Kafi EMA, Alayat M. Effect of Pulsed Nd:YAG Laser in the Treatment of Neuropathic Foot Ulcers in Children with Spina Bifida: A Randomized Controlled Study. Photomedicine and Laser Surgery 2013, 31(12) DOI:10.1089/pho.2013.3533.

4 Gabrhel J, Popracová Z, Tauchmannová H, Nemšák M (2014) Hilterapia® - high intensity laser therapy in the treatment of severe tendon and ligament injuries. Energy for Health; 13:20-25.

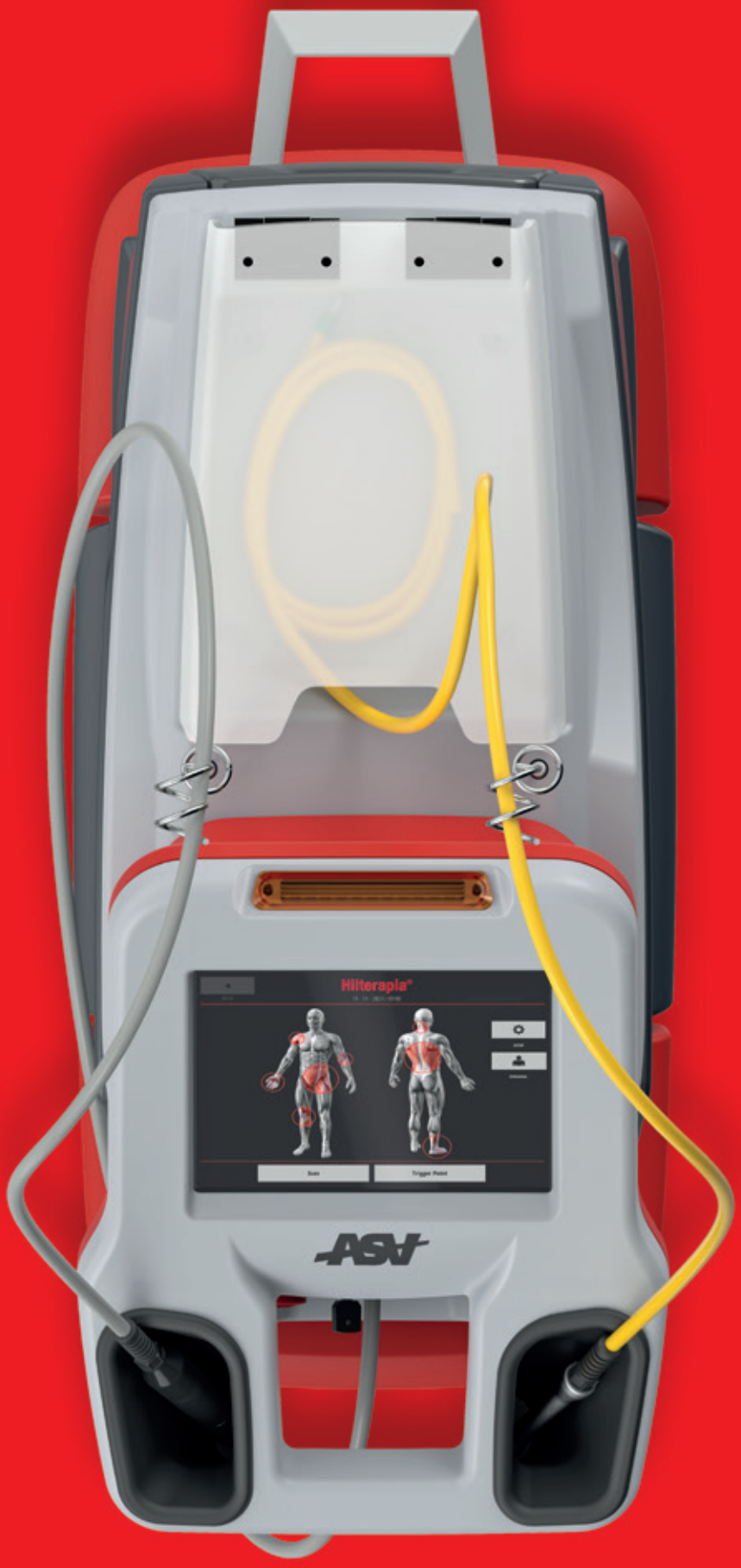
5 Monici M., et al. (2008) Gravitational/mechanical factors affect gene expression profile and phenotypic specification of human mesenchymal stem cells. In: Life in Space for Life on Earth. European Space Agency.



DJD Handpiece
Regenerative Power.

Specifically designed to treat **Degenerative Joint Disorders**, DJD handpiece is ideal for regenerative therapy where the primary goal is to maximize the transfer of the Hilterapia® pulse to the target tissues.

- Bell's shape cavity and gold-plated inner part to increase and maximize the laser emission by internal reflection.
- The sapphire window allows the user to apply a light pressure on the skin during treatment, reducing blood circulation and maximising the penetration of the laser emission into the tissues.


Hilterapia®
ASA

HRO

The new era of Hilterapia®

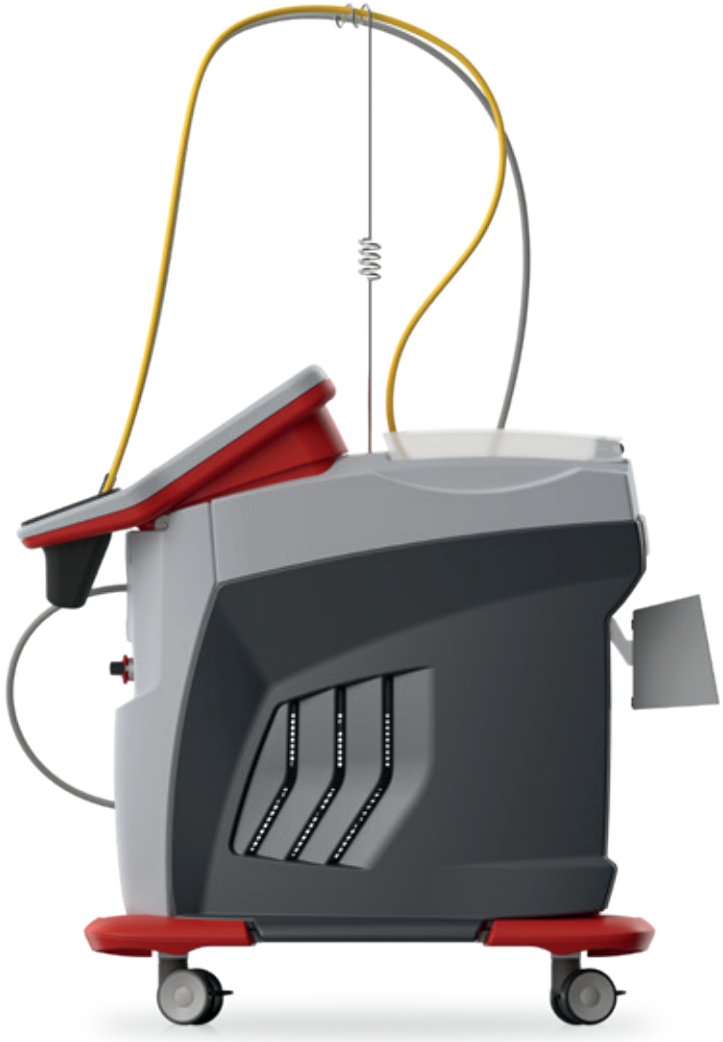
HIRO
Datasheet.

TECHNICAL FEATURES

- Laser system featuring the patented Hilterapia® pulse
- High Intensity pulsed Nd:YAG laser source
- Peak Power (max): 3,000 W
- Intensity (max): 15,000 W/cm²
- Energy per pulse (max): 350 mJ
- Frequency: 10-30 Hz
- Average power (max): 10.5 W
- Fluence (max): 1,780 mJ/cm²
- Pulse duration: ≤ 100 µs
- Auto-calibration of the laser emission to optimize the power delivery to the tissue
- User interface with 10” graphic color touch screen display
- Fully-customizable and retrievable programs

ALARMS AND SAFETY FEATURES

- Acoustic signal of laser emission during the therapy
- Date and time
- Language option
- Machine status signals and alarms
- Emergency stop button for laser emission
- Laser emission warning light
- Interlock
- Footswitch emission control



PROVIDED ACCESSORIES

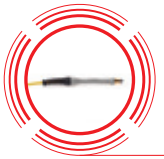
- Ø 5 mm handpiece for pain therapy
- Patented DJD handpiece for regenerative therapy
- N.2 fiber holders
- N.2 laser safety goggles
- N.1 footswitch emission control pedal

POWER SUPPLY, DIMENSIONS AND WEIGHT

- 115/230 V 50/60 Hz 1840 VA
- 37 x 75 x 132 (W x D x H) cm
- 52 kg

Therapeutic handpiece

Ø 5 mm handpiece for pain therapy featuring a spacer for the correct energy delivery on the treatment area. Intensity 15,000 W/cm^2



DJD handpiece

DJD handpiece for regenerative therapy, optimizing the Hilterapia® pulse transfer to the tissue. Patented. Intensity 15,000 W/cm^2

VISIBLE AND INVISIBLE LASER RADIATION AVOID EYE
OR SKIN EXPOSURE TO DIRECT OR SCATTERED RADIATION.

CLASS 4 LASER PRODUCT.

HIRO

Hardware & Software plus.

1 10” TOUCH SCREEN DISPLAY

Large touch screen display for better visibility and user-friendliness.

2 BUMPERS

Sturdy protection against accidental impacts when moving the device.

3 Ø 75 MM SELF-LOCKING WHEELS

Improved smoothness and mobility indoors.

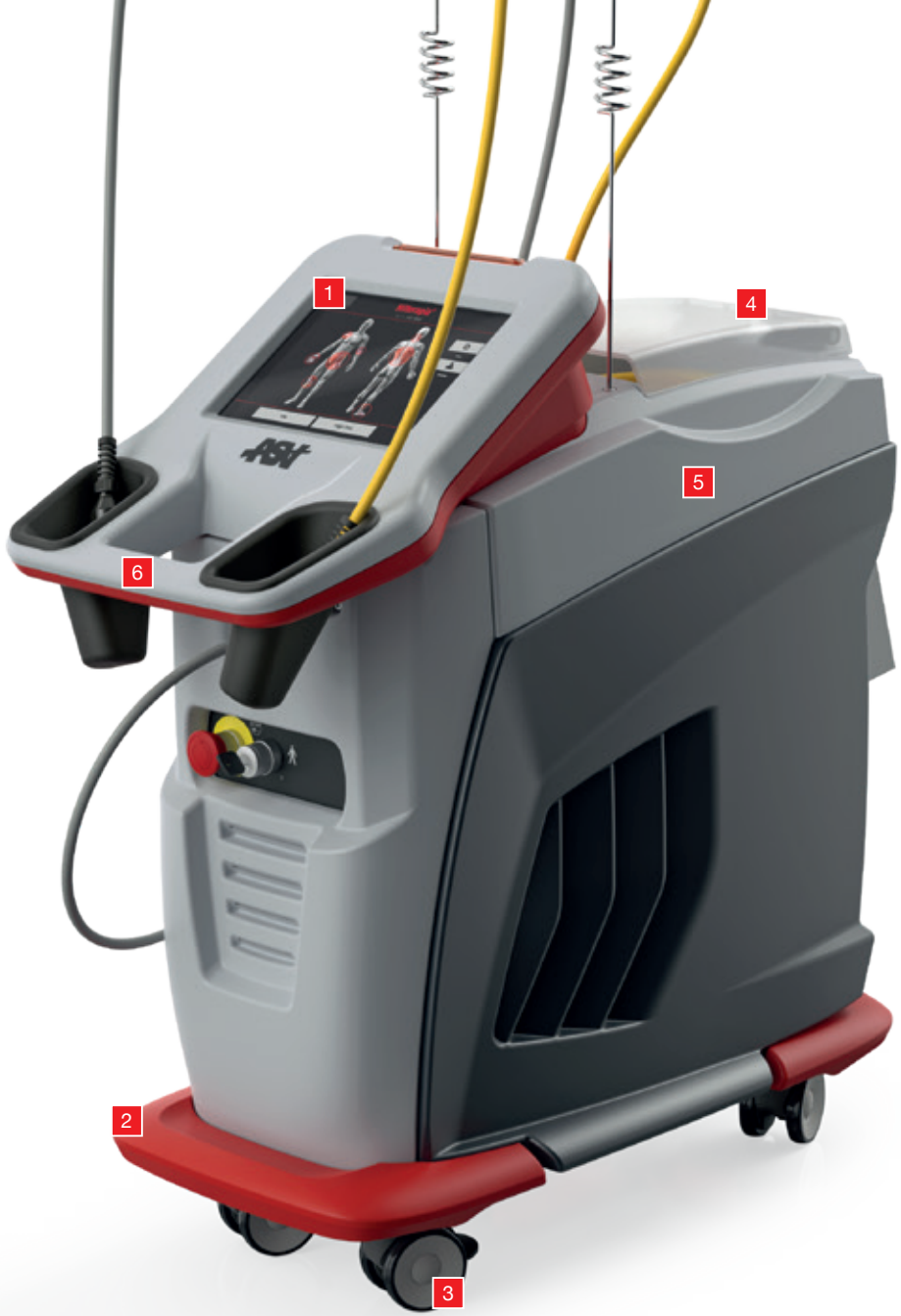
4 LARGE STORAGE SPACE

Suitable to keep accessories such as the second handpiece and the glasses protected, yet close-by.

5 ELECTRONIC-CONTROLLED SYSTEM TO OPTIMIZE THE PERFORMANCE OF THE DEVICE

Auto-calibration of the laser emission allows for:

- Optimization of the power delivered to the tissues
- Maximisation of safety
- High quality emission over time



6 **FRONT HANDLE**

Ideal for smooth movements even in small spaces.

7 **USER-FRIENDLY GRAPHIC INTERFACE**

Each protocol is graphically supported by sequences of images and videos precisely showing target areas and location of the pathology.

8 **FULLY-CUSTOMIZABLE PROTOCOLS**

Treatments are fully-customizable, ensuring tailor-made treatments to all patients, in total safety.

9 **NEW, FASTER PROTOCOLS**

Predefined Hilterapia® protocols have been optimized to be performed in a faster modality.


Osteoarthritis
Main
Trigger Point
ASV

A tale of passion, commitment and talent.

ASA Quality System is certified by TÜV SÜD Product Service GmbH (ISO 13485:2016), TÜV SÜD AMERICA (ISO 13485:2016), and TÜV SÜD Italia (ISO 9001:2015).

ASA devices are marked CE0123, EU MDR compliant and US FDA listed.

+ 90 served Countries + 30,000 installed devices

+ 500,000 therapies per day + 15,000,000 patients per year

+ 100 documented clinical cases + 200 scientific publications

FOR EnergyHealth International journal of information and scientific culture

ASA LASER
Research and Therapeutic Solutions

Hilterapia® | MLS Multiwave Lockedsystem | Qs Magnetotherapy

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