

**DYNAMIC FOOT PRESSURE  
MOTION ANALYSIS  
POSTUROGRAPHY  
RANGE OF MOTION  
EMG  
3D IMAGING  
CNC MILLING MACHINES  
MILLING MATERIALS  
SHOCKWAVE  
POWERMEDIC LASERS  
3D MOTION CAPTURE**



Technology in Motion

## ***A B O U T   U S***

Our mission is to develop and produce new systems for changing the professional experience in evaluating human posture, biomechanics and foot function.

With great passion, we listen daily to our customers, integrating their needs with new solutions, to push our devices and systems forward, offering a real technological evolution.

We are a reliable and professional partner that guarantees quality on our products and services.

The flexible management of our business processes enable us to achieve maximum efficiency for the satisfaction of all our clients.



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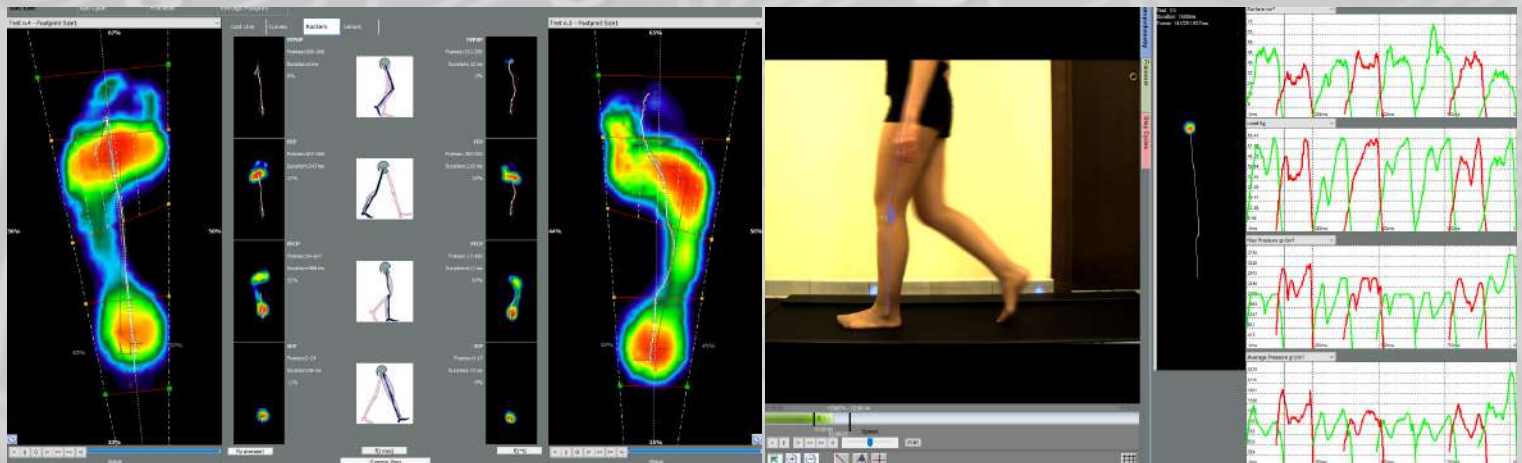


# freeStep

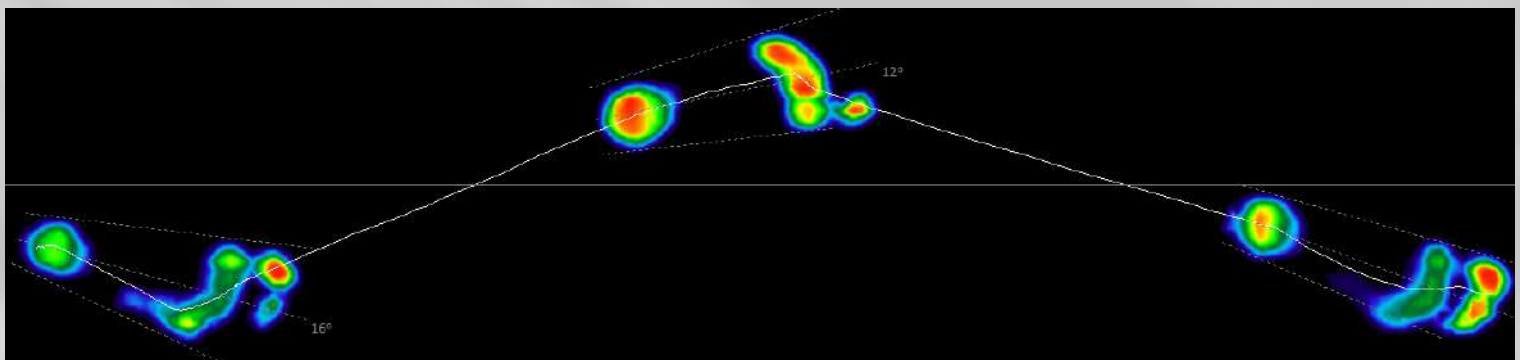
BIOMECHANICS SOFTWARE

**freeStep** is an advanced software for the study of plantar pressure, biomechanics and humans-space relationships. It can perform many types of biomechanical evaluations including: static and dynamic plantar pressure, motion analysis, EMG, morphological video analysis, digital imaging, posturagraphic studies with auto generated reports.

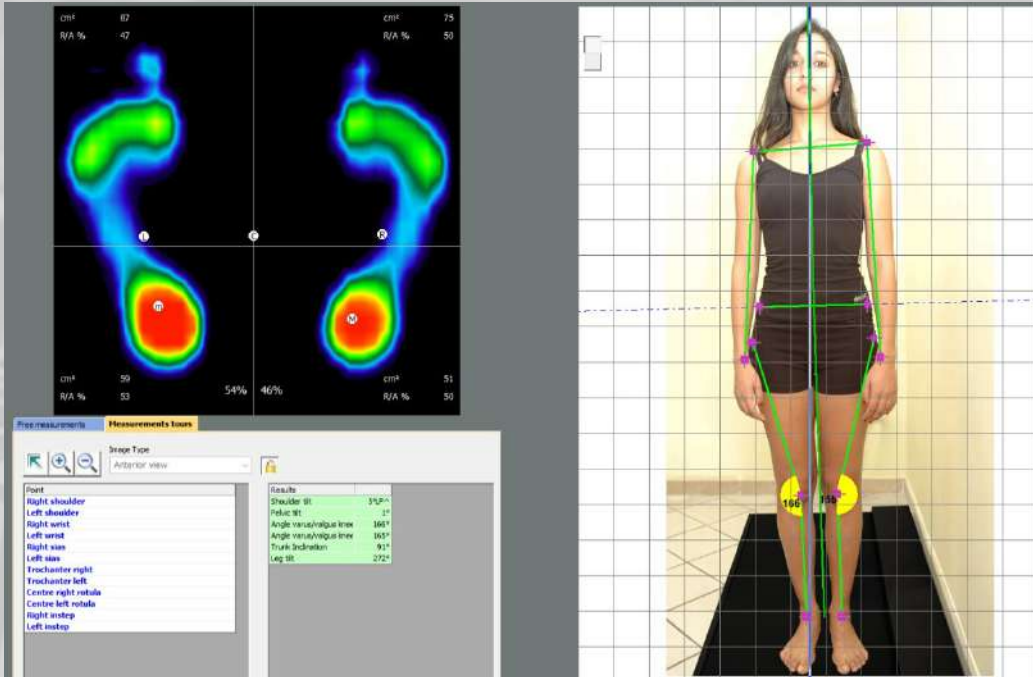
## DYNAMIC ANALYSIS



**freeStep** can capture and analyze each single footprint, automatically generate measurements, curves and graphs, foot geometry, gait cycle, numeric values and gait line reports, completely synchronized with multi-video camera acquisitions. It can also show the comparison with normal values or previous examinations.



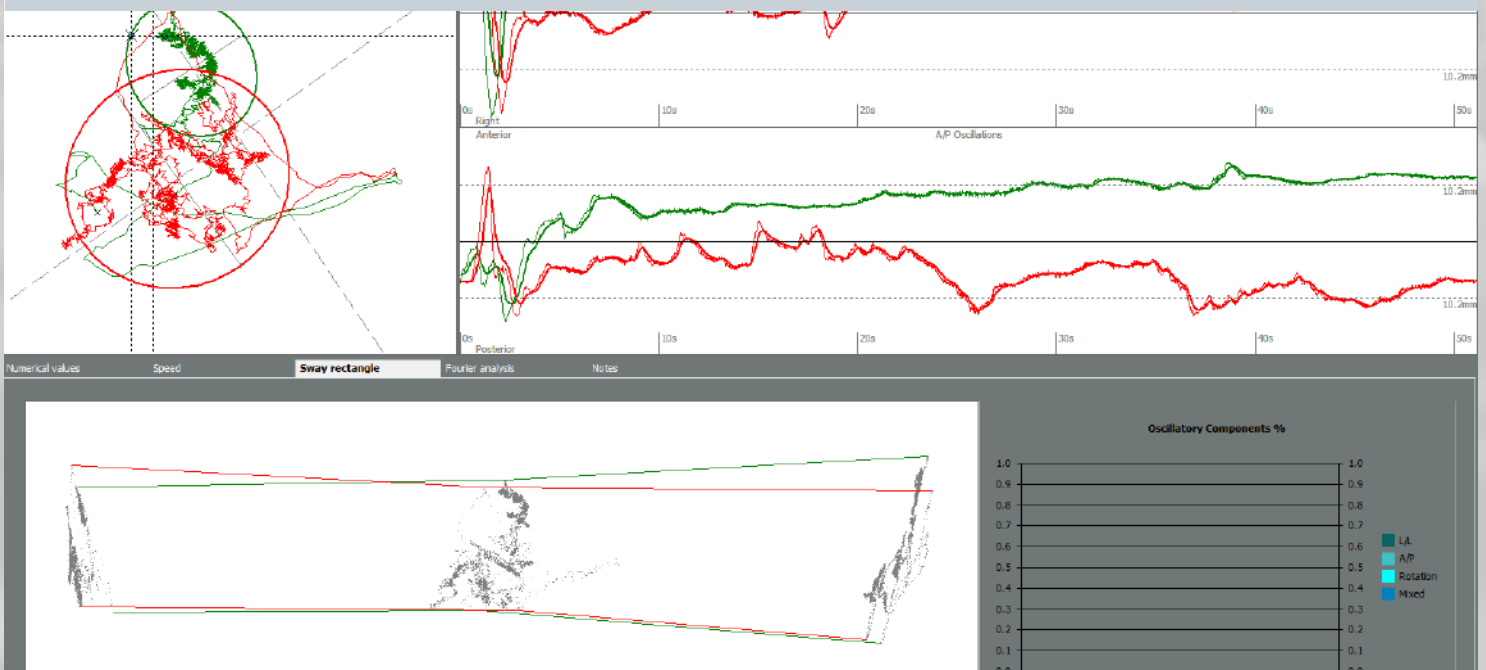
## STATIC ANALYSIS



Plantar pressure loads shown in 3D, high resolution and numeric values. 250 frames captured over a period of 5 seconds. Lateral/Medial and Rear/Forefoot pressure distribution, surface area, center of pressure calculations with automatic report.

## POSTUROGRAPHY

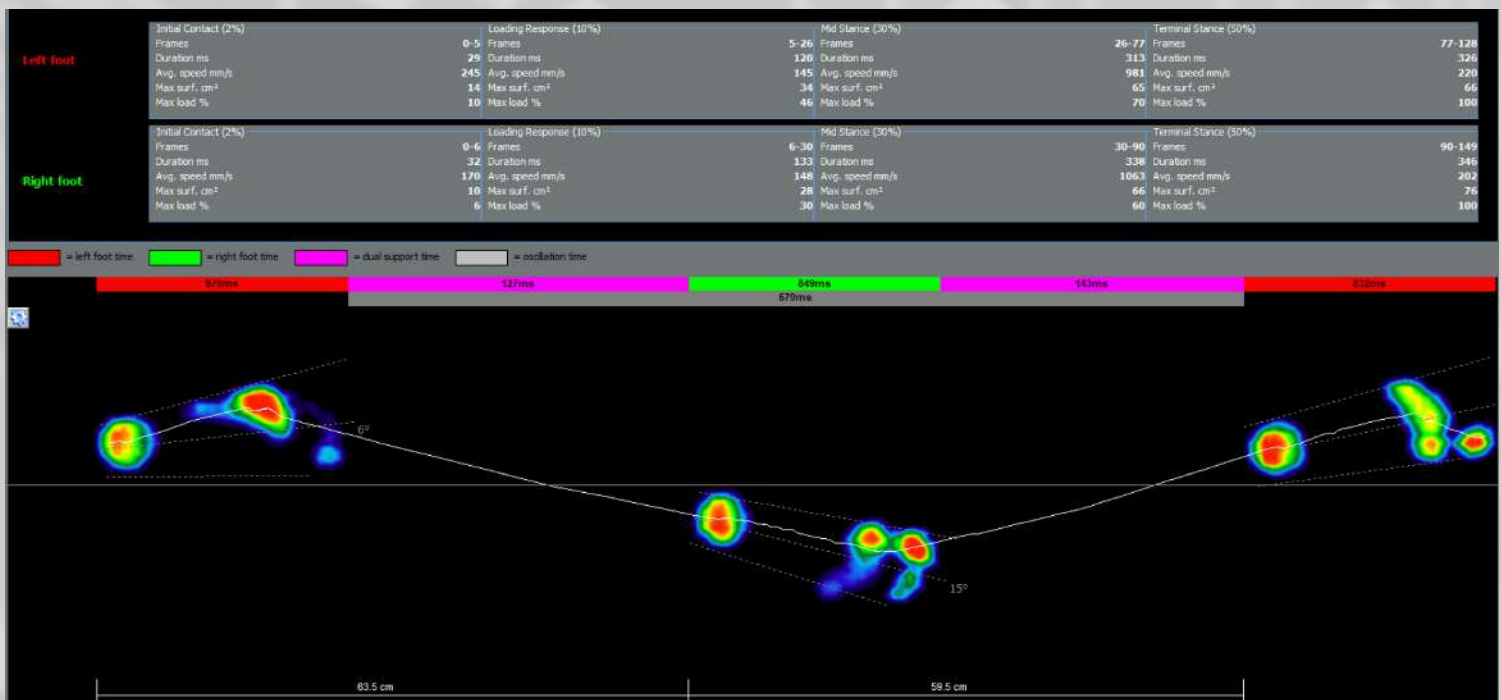
Balance evaluation comparing different tests with default protocols (Romberg, Sway, etc.). Sample frequency from 5 to 150 Hz, ellipse surface, anterior/posterior and laterals oscillations, postural rectangle, comparison values.



# freeMed

SENSOR PLATFORMS

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**freeMed** sensor platforms are produced in aluminium for detecting plantar pressures and balance during standing and walking.

They are lightweight and transportable, always complete of two passive plates. High sample frequency of more than 400Hz in real time.

All the resistive sensors are 24K gold coated to ensure an extreme reliability and repeatability and have a durability of more than one million work cycles.

All the acquired information is processed in our freeStep analysis software.

Maintenance free with no hardware re-calibration required.

3 year warranty.

## PLATFORM MODELS

Technical Features Sensors area	40x40	60x50	120x50	180x50	240x50	300x50
Power	15Vcc					
Absorbtion (mA)	50	50	300	300	450	450
Resolution XY	2.5 dpi					
Resolution Z	8 bit					
Sample frequency	200 - 400Hz depending from the model					
Interface	USB 2.0 / Bluetooth					
Total dimensions mm	440x620	640x740	1240x740	1840x740	2440x740	3040x740
Thickness	8 mm					
Kg	4	4	8,5	16	22	30
Type of sensors	Resistive, 24K coated, with conductive foam					
Scanning	matrix scan					
Calibration	10 bit automatic					
Temperature	0°C - 55°C					
Max pressure	150N/cm2					
Durability	1.000.000 cycles					
Certification	CE					

# Run Time

## SENSORIZED TREADMILL

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**Runtime** sensor treadmill has 4,800 resistive sensors under the carpet for detecting plantar pressure, gait cycle and balance during standing, walking and running.

Inclination 0-15%. Speed 0.5-14 mph.

Sensorized area: 21 x 59 in.

Max user weight: 330 lbs.

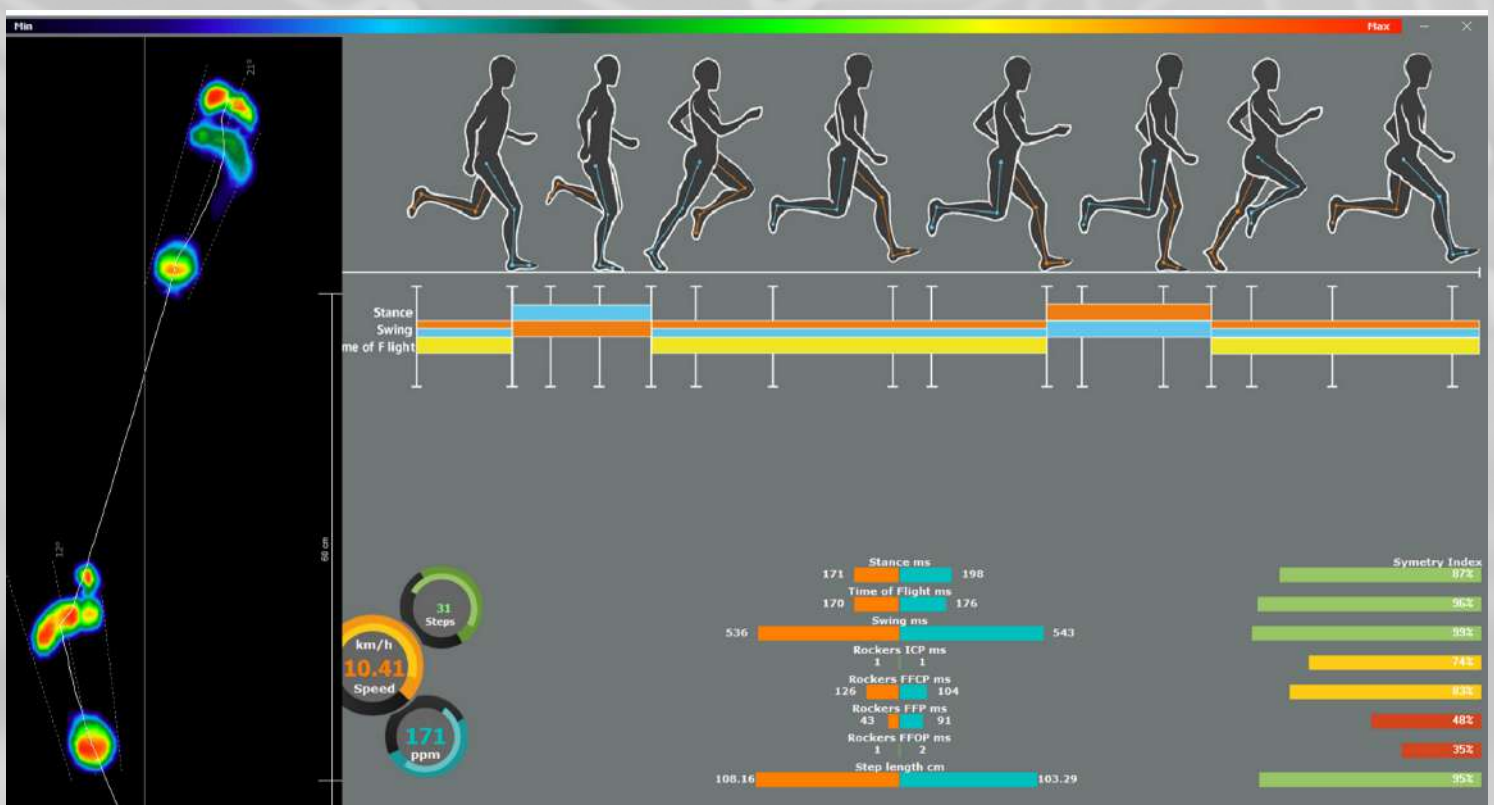
Dimensions: 81 x 35 x 62 in.

All sensors are 24K gold coated to ensure an extreme reliability and repeatability. High sample frequency of more than 200Hz in real time.

Normally used with two synchronized cameras for studying the body posture.

All acquired information are processed inside our freeStep analysis software.

3 year warranty.





**FlexInFit** insoles have more than 400 resistive sensors. The system allows you to perform precise analysis inside a patient's shoe. Capable of streaming live or recording the data via SD card.

FlexInFit is a versatile tool with many applications for many types of professionals:

- foot specialist who wants to integrate in-shoe data into his gait analysis system,
- physical therapist who wants to check the results of therapy
- athletic trainer interested in the study and improvement of sports movements,
- physician interested in verifying the real pressure points inside the shoe to prevent the formation of ulcers in diabetic patients.

It can also be used to determine the efficacy of custom orthotic correction.

It is totally wireless and junction box free, to avoid any kind of interference.



**Bluetooth** data transmission  
up to 100 meter range.

Sampling frequency 50 Hz by  
streaming and 250 Hz by SD  
card.

Automatic identification of foot  
size, thickness 0,3mm.

Material: polyester, flexible,  
must be cut to size and shape.

Insole life: around 15-20 tests

Measure scale: 0-100 N/cm<sup>2</sup>

Sensitivity: 0.1N/cm<sup>2</sup>

Resolution: 10 Bit

4 hour battery life

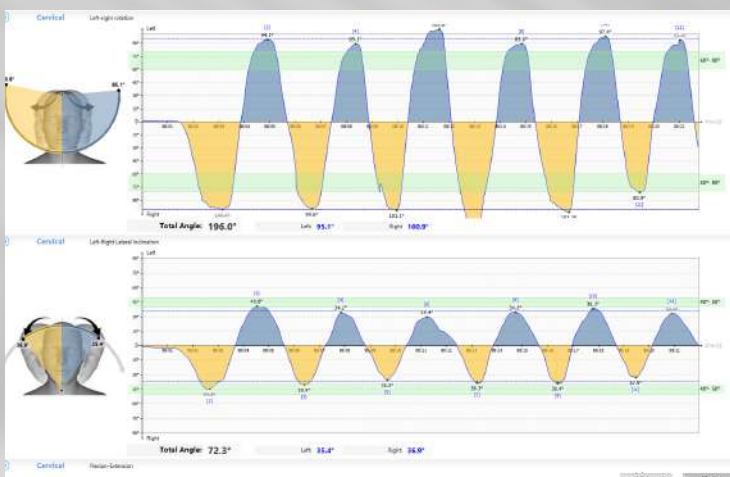
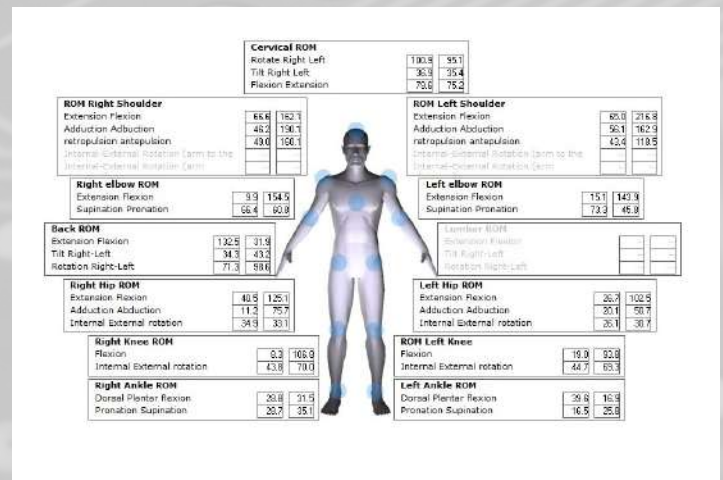
Li-Po rechargeable batteries

## 3D INERTIAL MOTION SENSOR

**Moover** is an inertial motion sensor (IMU) able to evaluate and measure your motions, accelerations and revolutions in space.

Its application in the scientific sphere allows the goniometric evaluation (range of movement) of any articulated joint. Its measurements are very important both for prevention as well as for rehabilitation. It's also useful for studying mobility and for monitoring and documenting improvements during therapy with the ability to compare different examinations with the normal values.

Moover is small, light, wireless, extremely precise and equipped with a long life battery. freeStep software is easy to use, converts the mechanical motions into an electrical signal and always gives you normal values for comparison and generates an automatic test report.



**Podoscan 3D** is a high definition laser device for the acquisition of foot morphology. It has a precision of 1mm and allows the capture of the foot image in neutral, semi weight bearing and weight bearing positions. It can also scan foam boxes, resin slipper socks or plaster molds. It is used for custom orthotic production and is normally combined with dynamic foot pressure data acquired with freeMed platforms. Acquired images are managed inside freeStep software and can be immediately exported to our 3D easyCAD software.



**Podoscan 2D** is an advanced tool for digital analysis of footprints and plantar loads. freeStep software allows you to capture and store the images and automatically measure and compare possible asymmetries and angles of the foot. You can make automatic or manual measurements of angles and axes, identifying and marking directly on the patient's feet the possible discharge points, which you can send to the easyCad software.

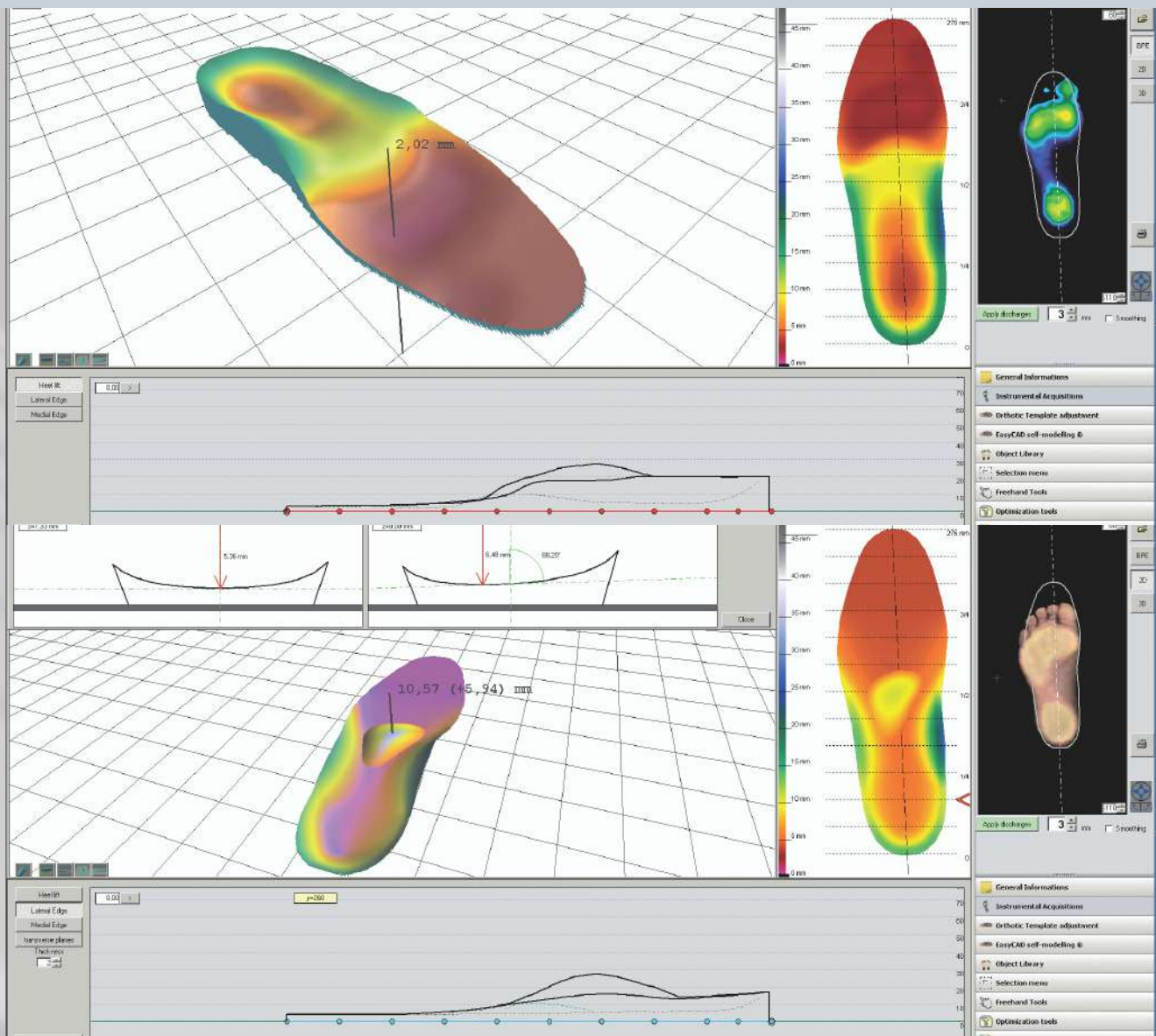


**easyCAD Insole** software was developed for designing and producing foot custom orthotics. It's a very powerful, professional, user friendly interface and it is the perfect combination between classic orthopedic techniques and modern technology of orthotic milling.

Through the development of tools for self-modeling, object library and predefined templates, it simplifies the design process improving the workflow of professionals at different stages of orthotic production.

easyCAD manages a database of patients and projects, facilitates the sending and receiving of data between the production labs and its customers.

It has an independent management of materials and top covers. It has a complete dashboard to draw to modify and customize the various templates.



**Vulcan CNC** systems are professional milling machines exclusively developed for producing CAD-CAM custom foot orthotics. Completely designed and manufactured in Italy, they are created for very high workloads and are for particularly high operating speeds. Working area 300x400 mm, vacuum steel plate for holding the material in place. Our use of high quality components and the accurate care in assembly ensure high performance without any kind of maintenance. Vulcan CNC systems can also mill positive molds in various materials for combination with thermoformable production. They are capable of milling any type of material or density.



**Vx1** is a machine with 3-axes and a single spindle. High speed and power for producing a pair of orthotics in as little as 7-8 minutes.



**twinCAM**, unique in the world, has 4-axes and two independent spindles that work simultaneously on both feet with asymmetrical motors. One pair of orthotics created in nearly 4 minutes.

# Grinding machines

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## ORTHOTIC FINISHING



**Mini Grinder** is a portable machine with a 0.5 hp motor and a sanding station with a large variety of attachments available.

One speed 3500 RPM. Built-in fan self-contained dust removal system 4" x 3" sanding wheel on removable bayonet fitting.

Width: 36" - Depth: 23" - Height: 24" -

Net weight: 53 lbs (24 kg)

Shipping weight: 75 lbs (34 kg)

Motor 115 V, 1 phase, 15 Amps



**P220 Grinder** has an expanding wheel 4" x 3" on the left side and grenade on bayonet fitting on the right side.

Direct drive blower creates powerful suction.

Dust collector system with dust bag.

Interchangeable bayonet shafts allowing a variety of grinding accessories.

On casters for easy access.

Width: 25" - Depth: 30" - Height: 53"

Net weight: 136 kg (300 lbs)

Crated weight: 211 kg (465 lbs)

Motor: 230 V, 7.4 Amps, 1 hp, 1 phase



# EVA blocks

*MILLING MATERIALS*

After many years of experience in selling our milling machines, together with our customers we have created the ideal range of milling blocks to meet all patient needs for custom foot orthotics.

Different shore A durometers, from 35 to 55, blocks combined in bi-densities and tri-densities that will be chosen depending on the patient pathology, weight and intended use in order to creating the best orthotic treatment.



# EVA blocks

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*MILLING MATERIALS*

**DIMENSIONS: 270 x 350 x 30 mm**



Color: Green  
Density: Dual Durometer:  
35-green /  
80 black Base (1.5mm)



Color: Blue  
Density: Dual Durometer:  
45-blue /  
80 black Base (1.5mm)



Color: Orange  
Density: Dual Durometer:  
55-orange /  
80 black Base (1.5mm)



Color: Blue/Green  
Density: Triple Durometer:  
45-blue / 35-green /  
80 black base (1.5mm)



Color: Multi  
Density: Single Durometer:  
45



Color: Orange/Green  
Density: Triple Durometer:  
55-orange / 35-green /  
80 black base (1.5mm)



Color: Orange/Green  
Density: Triple Durometer:  
55-orange (rearfoot) /  
35-green (forefoot) /  
80 black base (1.5mm)

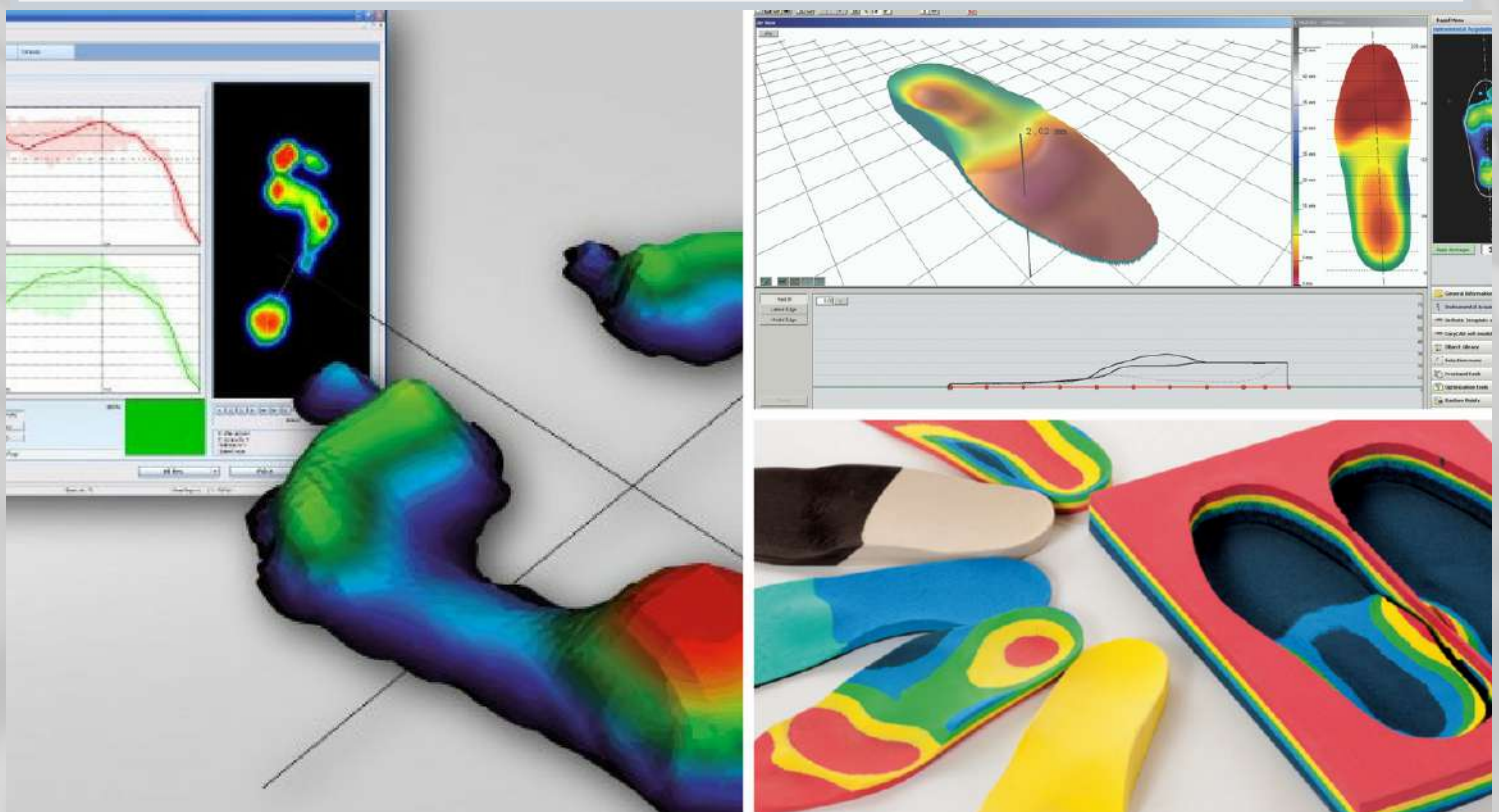
Our cutting edge technology allow us to design the best **custom foot orthotics** by objectively understanding the abnormalities and stresses while the foot is under load and in motion.

A full analysis of the dynamic phases of walking and running is imported into our easyCAD orthotic modelling software where we use proprietary self modelling algorithms to create the most advanced orthotics

We produce CAD-CAM custom orthotics in EVA and thermoformable in new generation thermoplastic resins.

Our customers can easily upload the patient information (dynamic foot pressure, 3D scan, plaster, foam box) inside our Cloud Insoles web portal. They can choose the type of orthotic, material and top cover.

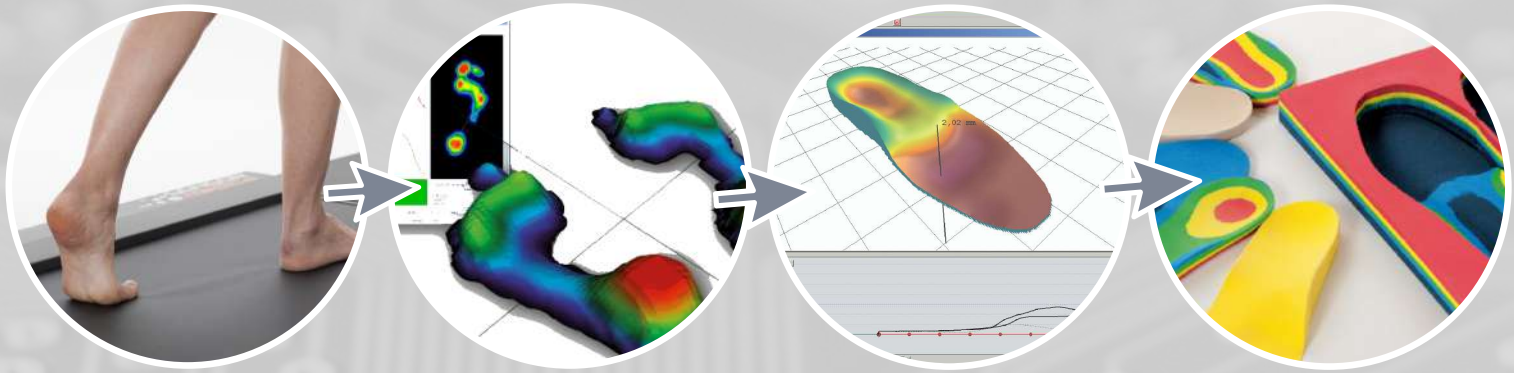
## ANALYSIS - 3D DESIGN - PRODUCTION





# Custom Dynamic Orthotic 17

CENTRAL FABRICATION LAB

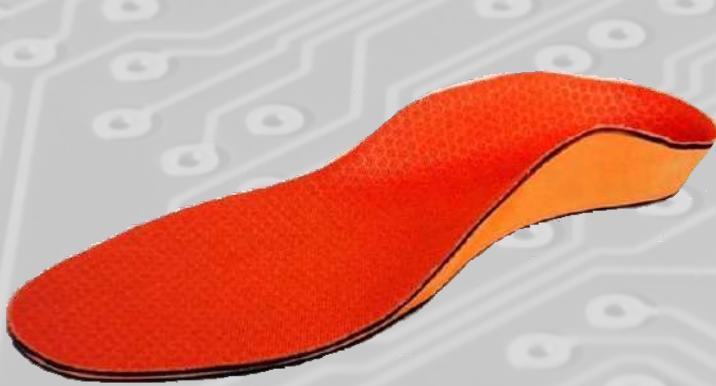


**Dynamic  
Acquisition**

**Software  
Evaluation**

**3D Orthotic  
Modelling**

**Precision CNC  
Production**



**DIRECT MILLED**



**THERMOFORMED**

Our gait and pressure systems give the most accurate objective data of the foot under load and while in motion, plus offer the option to incorporate this data into orthotic design.

## **FABRICATION PROCESS:**

Upload patient data from freeStep Software or any 3D scanning app to our cloud ordering system, select you options and we do the rest. The data and prescription are reviewed by a staff board certified podiatrist and fully designed and finished by our team and sent back to you.

**Free Shipping  
7-10 day turn time**

## EXTRACORPOREAL SHOCKWAVE

**freeWave** is a high frequency radial extracorporeal shockwave medical device.

It is non-invasive and an evidenced based innovative way to treat soft tissue and musculoskeletal pain primarily applied to chronic conditions, particularly those affecting medium to large sized tendons such as:

- **Plantar Fasciitis/Achilles**
- **Tendonopathy**
- **Retrocalcaneal Bursitis**
- **Morton's Neuroma**
- **Chronic Stress/Non-union Fractures**
- **Lateral Epicondylitis (Tennis Elbow)**
- **Medial Epicondylitis (Golfer's Elbow)**
- **Calcific Tendonitis (supraspinatus tendon)**
- **Patellar Tendinosis (Jumper's Knee)**

According to important Institutes, ESWT is a viable option to consider for many patients who present with chronic tendinopathy that hasn't responded to more-conservative treatments.

Often difficult to treat, chronic tendinopathy is characterized by localized pain and pathological changes to a tendon. The condition affects athletes and non athletes alike.

FDA has approved the use of ESWT for the treatment of plantar fasciopathy. However, multiple high-quality randomized clinical trials and University studies have provided substantial evidence that ESWT is a safe and effective noninvasive option for treating tendinopathy throughout the musculoskeletal system. All patients require a series of treatments, each of which lasts less than 30 min. A typical course of treatment is two treatment weekly for three weeks.



Acute

Chronic

**Notes**  
Determine trigger point and myofascial tone and prioritise.  
First treat existing trigger and pain points statically with series up to 600 shocks per point and series.  
Begin with the point with the highest priority.  
Finally work over the whole area dynamically.

Treat

Close

1/2

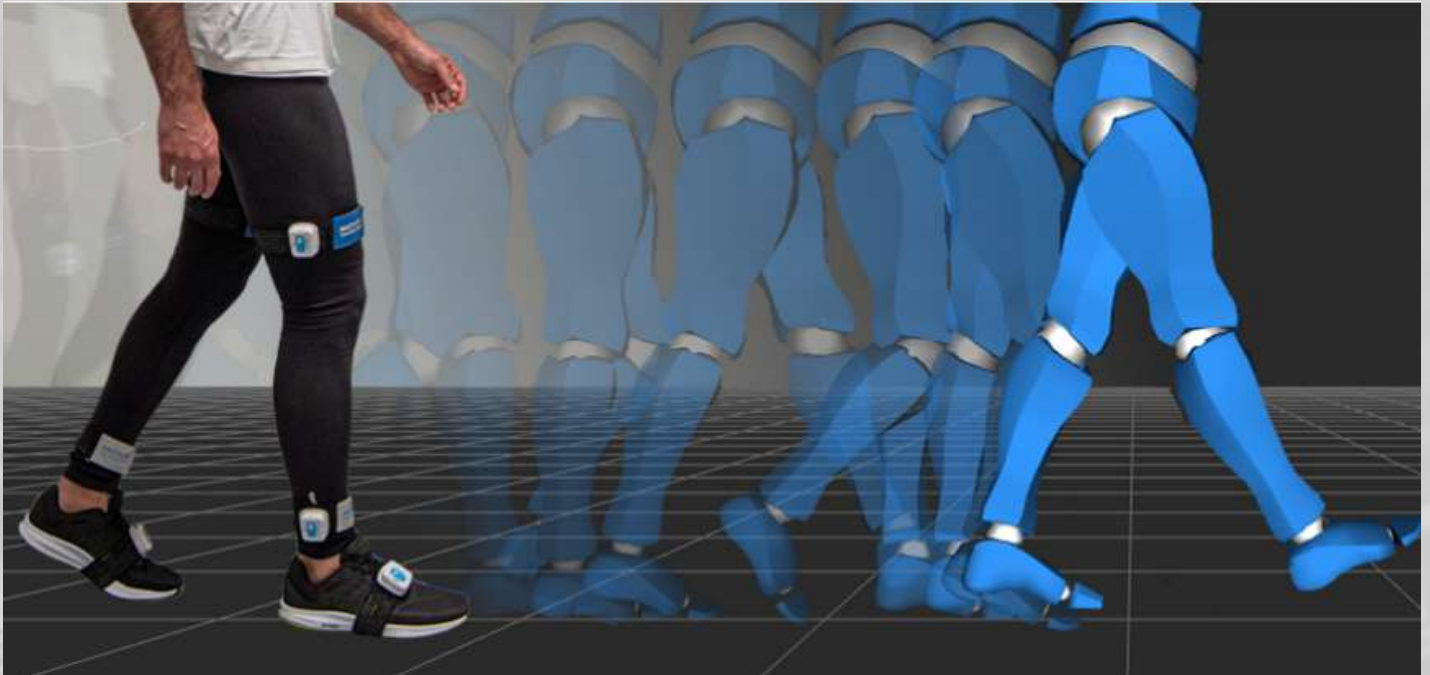
Body parts

List

Page up

Page down

## 7 Inertial Sensors for Gait Analysis



### Spatio-temporal parameters

- Stride time
- Step time
- Stance phase time
- Swing phase time
- Single support time
- Double support time
- Stride length
- Step length
- Shock impact shank
- Shock impact foot
- Cadence
- Speed

### Joint Angles

- Pelvis – Obliquity
- Pelvis – Tilt
- Pelvis – Rotation
- Hip – Abduction/Adduction
- Hip – Flexion/Extension
- Hip – Rotation
- Knee – Varus/Valgus
- Knee – Flexion/Extension
- Knee – Rotation
- Ankle – Inversion/Eversion
- Ankle – Flexion/Extension
- Ankle – Rotation

### Symmetry Indices

- Stride time
- Step time
- Stance phase time
- Single support time
- Double support time
- Stride length
- Step length
- Shock impact shank
- Shock impact foot
- Angular Similarity Indices

### 3D Animation

- 3d animation file generation
- BVH export
- Movements reproduction
- Slow motion feature





## Why Laser Therapy?

Laser therapy intensified energy for accelerated natural healing. Laser light penetrates deep into the tissue, into each individual cell.

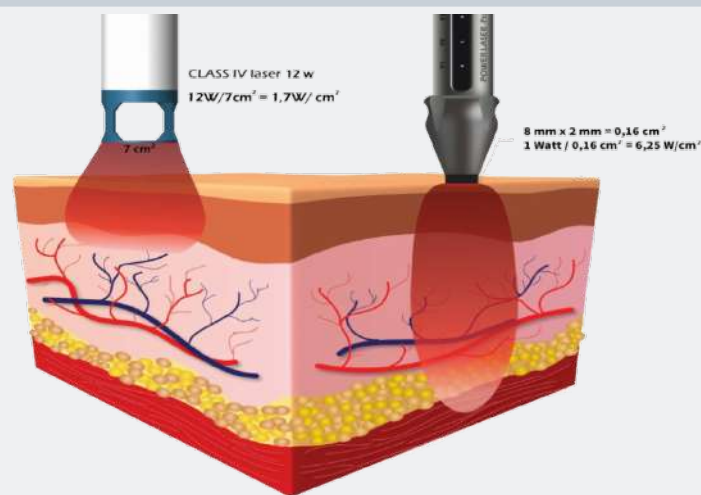
The cell absorbs the energy from the laser light and promotes all of your body's natural repair mechanisms.

Laser therapy reinforces the healing process and strengthens the immune system.

Laser therapy supports your body's own functions and makes them happen markedly faster. **Healing time for acute injuries is reduced by up to 75%.**

Laser therapy helps the body fight virus attacks and bacterial infections quickly and efficiently. The following are typical examples from everyday real life:

- Sprain heals completely in 6-8 days
- Cold sore disappears in 2-3 days
- Tennis elbow cured in 10-12 treatments
- Leg ulcer heals up in 2-3 weeks
- Arthritis pain reduced significantly.



## Depth of Penetration and Wavelength

Scientific Researches have identified three key parameters that determine light's ability to penetrate deep into the tissue. Namely, wavelength, power density and compression. Different types of tissue have different abilities to absorb light of different wavelengths. The lowest absorption of light, and consequently the largest depth of penetration, is reached at 800nm +/- 30nm.

Wavelengths above 900nm are absorbed primarily by water, while wavelengths lower than 700nm are absorbed primarily in the outer layers of the skin.



## PowerMedic Pro1500

The Pro1500 (1500mW-808nm) has **3 laser diodes**, totally wireless and mobile, which ensures greater freedom for both the practitioner and the patient when selecting the position and the treatment location. Single hand use.

PowerMedic Pro1500 includes HiFi sound – each program has its own individual tone so you can hear which program has been selected.

Built-in vibration – a discrete vibration lets both the patient and the user know that the laser is active. You can feel that the laser is on, that is treating the area.

All sound and vibration settings can be programmed for the individual user – the output can be selected and the different functions can be turned off.

Included is an extra battery so you always have one that is charged.

Number of laser: 3 diodes - Programs: 9

Treatment area: Medium size wave length: 808nm

Output power: 300-1500mW - Class 3B

Length: 9 in - Width: 1½ in

Weight (including battery): 7 oz

Battery capacity (Li): 1 hour - Recharging time: 2 hours

Lithium Ion batteries. 3-year warranty.





## GigaLaser

The GigaLaser has the world's largest therapy area of 500 cm<sup>2</sup>, is equipped with **36 laser diodes, 144 red and 144 blue LED**. With only a touch, you can adjust it to either individually or simultaneously emit one, two or three wavelengths of therapeutic light, maximizing results and reducing number of treatments. The result is a very powerful treatment that stimulates all body's functions. The head of the GigaLaser can easily be adjusted in three dimensions; it can be made to wrap, tilt and rotate into any position to fit your treatment area. Practitioner is not required to be present during the entire treatment. The GigaLaser has a user-friendly touch screen with 6 adjustable power and time protocols, you can effortlessly tailor your treatment to any patient for maximum therapeutic effect.







freeMed

Run Time

MOOVER

FreeWave

GAIT ANALYSIS INSOLES  
FLEXINFIT

podoscan

Vulcan Series



PowerMedic Lasers  
Get better • Faster

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