RICHARD WOLF

ELvation®
think in value

PiezoWave²

The Next Piezo Shockwave Generation

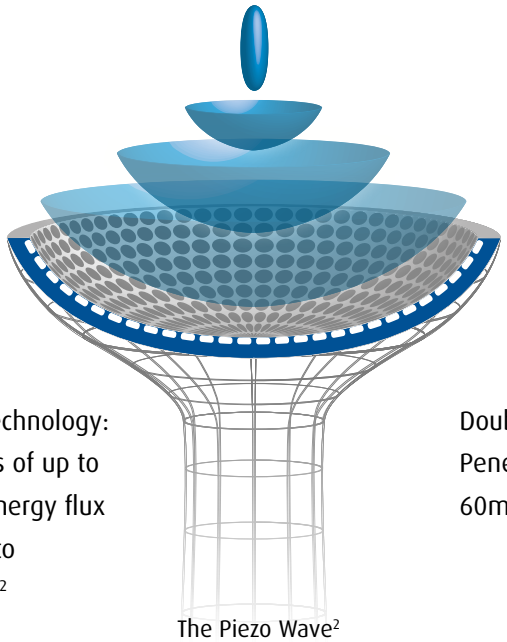
The PiezoWave²

The piezo-electric principle / focused

Piezo-ceramic elements are geometrically arranged on a concave surface so that when they are excited simultaneously by a brief, high-voltage pulse, they expand by a few micrometers to generate a pressure pulse. The piezo elements are precisely aligned so that each pressure pulse generated focuses in a specific area. This precise focusing of the pulse creates a shockwave at the point of focus.
The piezo shockwave's „direct focusing" technology eliminates the need for additional reflectors resulting in a compact therapy source design and a precise and well defined focal zone. The virtually painless therapy is applied quietly and energy levels can be freely adjusted with almost no adverse effect on the size of the focal zone.
The piezo shockwave technology is extremely durable.

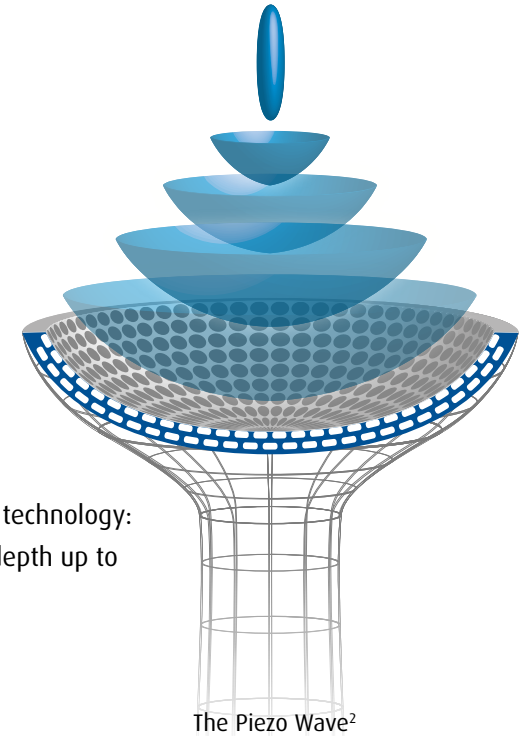
Piezo shockwave therapy sources are available with single-layer or double-layer technology, depending on the required energy levels, with peak pressures of up to 82 MPa.

Single-layer technology:
Peak pressures of up to 82 MPa and energy flux density of up to 0.822 mJ/mm²



The Piezo Wave²
F10G4 therapy source

Double-layer technology:
Penetration depth up to 60mm



The Piezo Wave²
FB10G6 therapy source

Efficacy of focused ESWT

Extracorporeal shockwaves are mechanical stressors capable of inducing biochemical changes in living tissue; at a molecular level these changes can influence gene expression in cells and, if used selectively, can produce specific reactions in tissue. This process is referred to as mechanotransduction.

Mechanical stimuli can affect almost all cellular functions in living tissue, including growth, cell differentiation, cell migration, protein synthesis, physiological apoptosis and tissue necrosis. New studies have shown that ESWT is able to stimulate the endogenous production of lubricin in tendons and septa.

Scientific studies and publications, using the highly accurate piezo-shockwave technology, have confirmed the effectiveness of focused shockwaves for various common musculoskeletal conditions as well as trigger point diagnosis and treatment. ESWT is one of the few medical technologies which can treat chronic pain syndromes of the musculoskeletal system effectively by jump-starting self-healing processes.

Tablet PC
not included

Shockwave therapy breaks new ground

- Focused, linear or planar – the best shockwave for every indication
- Excellent performance with single-layer and double-layer technology
- Piezo-electric “direct focusing” technology – minimal pain during applications
- Well defined, precise focus – perfect for diagnosis and therapy
- Uniquely durable therapy source
- Finely adjustable up to 60mm penetration depth (Piezo Wave2 FB10G6 therapy source) using interchangeable gel pads
- Independently adjustable penetration depths and energy levels
- Wide range of energy settings with a pulse rate up to 8Hz
- Simple operation with App support and Ipad holder
- Plug&Play – therapy source recognition

The PiezoWave²

Focused, linear, and planar shockwave therapy

The piezo-electric shockwave principle offers an extensive range of shockwave configurations. The only one of its kind in the world, the PiezoWave² allows users to choose between a classic focused shockwave, a linear focused shockwave, and a planar pressure wave. The right shockwave mode is available for every indication.

Focused shockwave

The focused therapy source of the PiezoWave² is characterized by its well defined and precise focal zone and a penetration depth up to 60mm (PiezoWave2 FB10G6 therapy source)

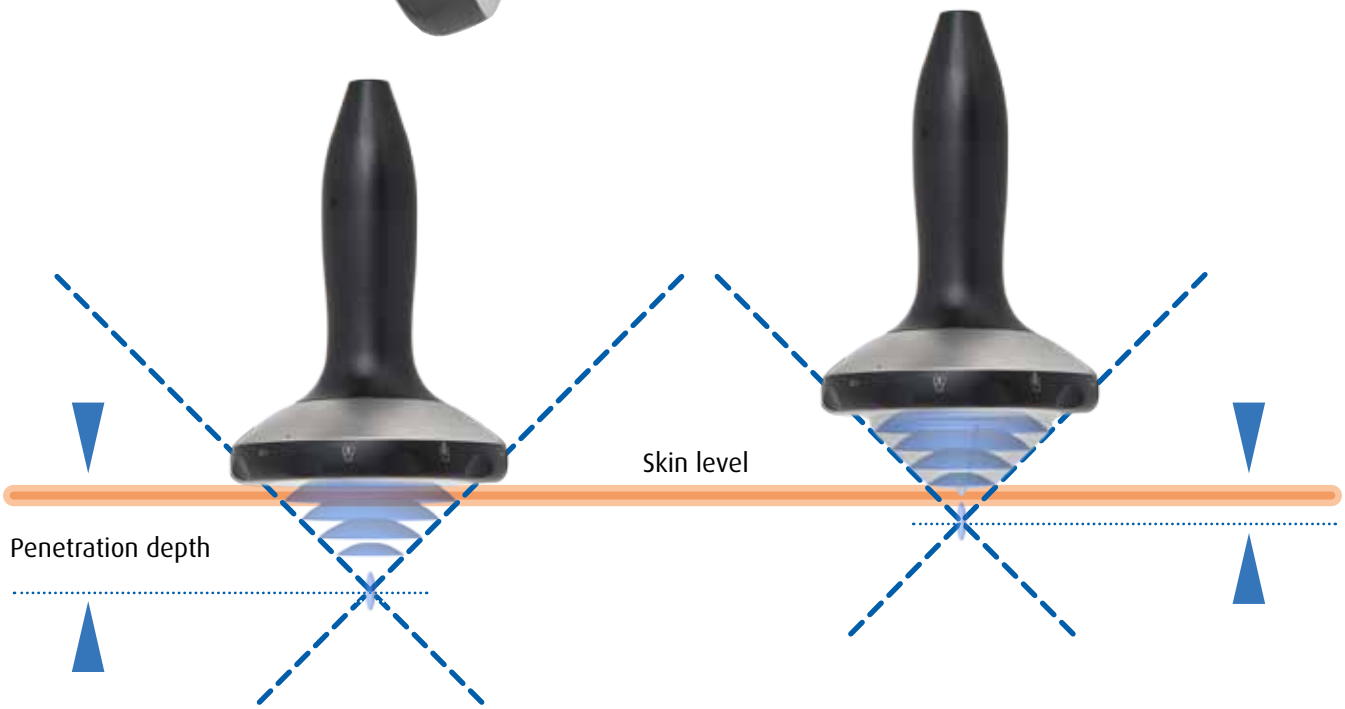
Linear shockwave

Breaking new ground in shockwave therapy. The unique linear alignment of piezo crystals along the width of the therapy head creates multiple focal zones and provides a larger overall area of shockwave treatment.

Planar pressure wave

The piezo elements of the planar therapy source are not aligned toward a specific focal area; instead a non-focused pressure wave is created which is particularly suitable to increase local blood flow and improve metabolism.

The Piezo Wave^2
F10G4 therapy source



Penetration depth

The piezo shockwave technology uses interchangeable gel pads which contact the patient to ensure that the shockwave penetrates precisely to the desired depth with as little scattering as possible. These gel pads are used as spacers and change the penetration depth in increments of 5 mm. They accomplish this by drawing the therapy source's static focal area incrementally superficial or deep respectively. Maximum penetration depths of between 20mm and 60mm are possible, depending on the therapy source.

The PiezoWave²

An operational concept ensuring you will always be up-to-date

The PiezoWave² has an improved user interface that simplifies it's daily use. Therapy source recognition through Plug&Play ensures that your PiezoWave² will provide the appropriate energy spectrum when you plug in the therapy source. Individual settings can be adjusted with just a few keystrokes. You are supported by our optional ESWT App for your Ipad. With this new form of user support we want to ensures that even in future you will continue to receive the latest information on settings and the newest recommendations for PiezoWave² clinical applications. Quickly and online.

- Therapy source recognition with Plug&Play
- Easy to use – uncomplicated operation
- Quick therapy start
- Supported by our ESWT Ipad App
- Use of external, supporting Apps
- Always up-to-date

Available on the iPad App Store

The PiezoWave²

Range of indications for ESWT

Chronic pain of the musculoskeletal system is one of the most common debilitating conditions affecting people at epidemic proportions. The majority of these painful conditions are the result of enthesiopathies such as tennis elbow, calcaneal heel spurs, or calcifications of the shoulder joint. Myofascial trigger points have also increasingly been diagnosed as major causes of chronic pain. Focused ESWT has now become established as a useful method for the diagnosis and treatment of many acute and chronic pain syndromes of the musculoskeletal system.

1. Tennis elbow
2. Calcific tendonitis of the shoulder
3. Golfer's elbow
4. Trigger point treatment
5. Pseud-Arthrosis
6. Greater trochanteric pain syndrome
7. Patellar tip syndrome
8. Medial tibial stress syndrome
9. Plantar talalgia
10. Achilles tendinopathy

Unique wound healing therapy

The shockwave with a linear therapy focus

Richard Wolf GmbH and ELvation have developed a new and unique technology: a linear, focused shockwave. The aim was to create a shockwave that could be applied more uniformly and more effectively compared to the point-shaped focus of conventional shockwave therapy sources.
Gel pads are used to adjust the penetration depth to between 0 and 20 mm and to ensure that the acoustic field is optimally adapted to dermatological applications.

ESWT/ESWL Team

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