



*Innovative Piezo Technology -
the shock wave of the future!*

ESWT / TPST



Piezoson **100** *plus*

Focused extracorporeal shock wave therapy (ESWT) and trigger point shock wave therapy (TPST) in orthopaedics

Focused extracorporeal shock wave therapy – ESWT

Therapy

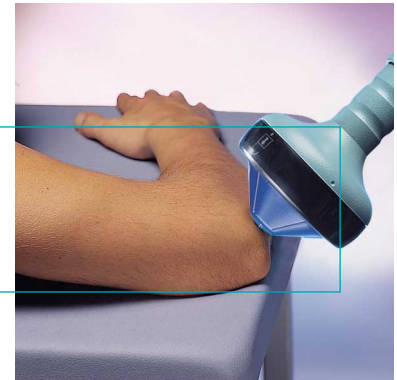
The **Piezoson 100 plus** is a compact and extremely mobile **ESWT** unit for individual therapy options:

- Epicondylitis humeri radialis and ulnaris
- Jumper's knee
- Plantar fasciitis with heel spurs
- Tendinosis calcarea
- Impingement syndrome
- Pseudoarthrosis

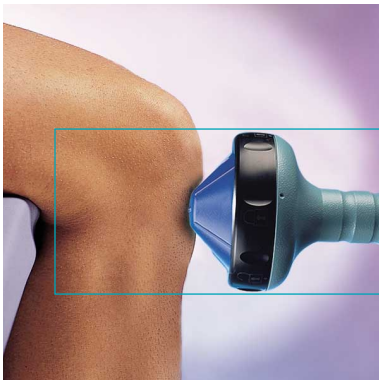
Shoulder
Soft tissue treatment at the rotator cuff of the shoulder with and without calcification (tendinosis calcarea)



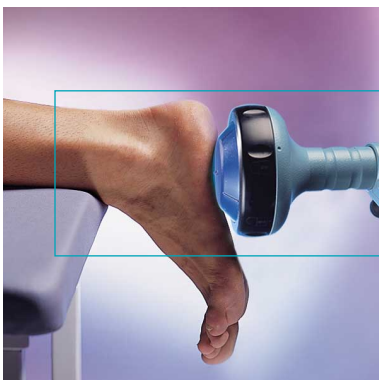
Elbow
Tennis and golf elbow (epicondylitis humeri radialis and ulnaris)



Knee
Treatment of the patellar tendon attachment "jumper's knee"



Foot
Treatment of the plantar fascia in cases of plantar heel spurs "plantar fasciitis with heel spurs"



Advantages in ESWT

- High, clearly defined depth of penetration
- Practically maintenance-free
- Highly accurate treatment
- Low risk of haematoma
- Maximum energy directly in the treatment area
- Practically no skin irritation
- Small design, portable, compact

Explanation of the physics



After more than 55 years **RICHARD WOLF** GmbH Knittlingen can look back on more than half a century of medical history. Endoscopy, the basis for all minimally invasive therapy, was always the speciality of the house of **WOLF**. With the development of the extracorporeal lithotripter based on the principle of piezoelectric shock waves, the house of **WOLF** has made a further significant contribution to non-invasive stone therapy.

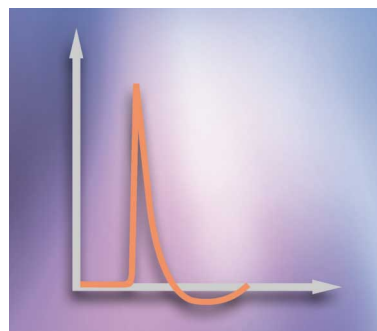
WOLF has always been one of the initiators in endoscopy. This unique advantage in experience and know-how in endoscopy allows us to produce modular system solutions for all specialist medical areas. Brilliant new ideas for the development of products, innovative concepts for complex system solutions and the highest degree of functionality are the basis not only of perfected endoscopy systems. We were one of the first companies producing endoscopes to be certified by an accredited test centre for medical equipment complying with EN ISO 9001. In the promotion of medical science, we maintain a constant dialogue with experienced physicians to improve instruments and endoscopy systems for ever more efficient surgical methods.

The **Piezoson 100 plus** generates shock wave energy for highly effective and painless treatment using several hundred piezo elements. These are arranged as a mosaic and aligned exactly with the therapy focus.

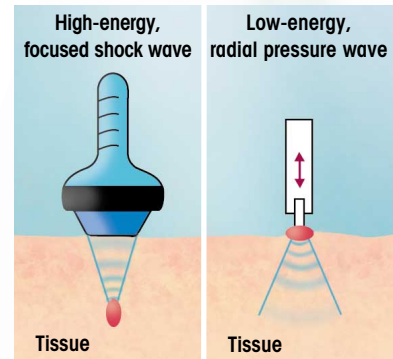
The well-defined focal zone means optimum protection of the tissue in the immediate vicinity.

The energy density is so low that no surface pain and only slight deeper pain occurs. The large angle at which the shock wave enter the body makes treatment practically painless. 25 finely adjustable energy levels ensure maximum therapeutic success while minimizing the effects on surrounding tissue.

The two-layer shock wave source consists of two piezo-ceramic layers arranged one above the other. The two ceramic layers are excited separately by a high-voltage pulse generator. The cumulative energy of the two layers is applied at the focus and guarantees the best possible therapeutic success.



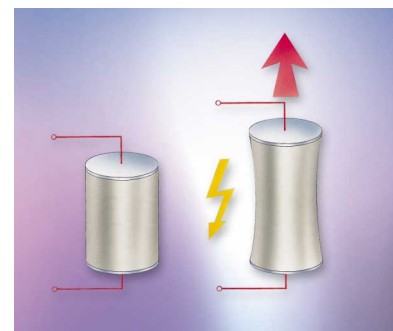
Shock wave pressure pulse:
Strikingly high amplitude, short rise time, short pulse duration



The maximum energy of the **high-energy, focused shock wave** is directly at the point of pain; the maximum energy of the low-energy pressure wave, on the other hand, is at the surface of the skin.



Piezo transducer surface with its mosaic design.



When excited by a high-voltage pulse, the cylindrical piezo elements expand briefly by a few micrometers along their axis.

ESWT – extracorporeal shock wave therapy

The **Piezoson 100 plus** is a small, powerful desktop device for extracorporeal, shock wave therapy of all orthopaedic **ESWT** and **TPST** indications. The heart of the system is the compact Wolf piezo shock wave source with its double-layer technology. This allows the device to be kept small and ergonomic while still achieving excellent performance. With the multifunction control and display unit integrated in the front panel, the device is simple to operate. All important device parameters can be finely adjusted and monitored.

A multi-connector allows gel-filled therapy sources with different shapes to be adapted. With the gel-filled waterless therapy sources, the depth of penetration can be varied by using pads of different thickness. The gel pads are secured and released using a simple bayonet connector. New acoustically adapted gels now allow the focused shock waves to be adapted without a water-filled coupling membrane.



Piezo shock wave source (adjustable therapy sources)

All the shock wave sources of the adjustable therapy sources were designed with the new double-layer technology. Apart from giving double the power, we also guarantee a working life of at least 5 million shock waves.

A further advantage is the large-area energy coupling with an aperture angle from 90° to 108°. This reduces the energy density at the surface of the skin and considerably reduces pain – which is particularly important at a low depth of penetration. The large aperture also results in a precisely defined focal zone allowing accurate treatment while providing the best possible protection for surrounding regions. Depending on the indications, treatment can be selected in the low, medium and high energy ranges. The power is selectable with 25 intensity levels allowing treatment in the lower energy range without sedation or anaesthesia.



The **FB 7 G2** therapy source was designed especially for indications close to the surface in sport medicine. It allows optimum handling with an ideal view of the area being treated.



The **FB 10 G4** therapy source can be used for all standard indications in orthopaedic **ESWT**.



The **FB 12 G5** therapy source is the energy source with the highest energy for special indications requiring a greater depth of penetration, for example the treatment of pseudo arthrosis and trigger points.

The alternative to surgery in the low, medium and high energy ranges



The **Piezason 100 plus** in convenient carrying case. Instant flexibility and ready for action. The entire equipment for the **Piezason 100 plus** is safe and protected, transportable and can be used anywhere, any time.

Economic arguments for the Piezason 100 *plus*

New impetus for your practice

The **Richard Wolf Piezason 100 *plus*** allows universal application for a large number of indications. With this unit, you can expand the range of indications you can treat and offer relief of chronic pain to a wider circle of patients. As a non-invasive procedure, extracorporeal shock wave therapy is a genuine and successful alternative to surgical intervention. Patients are treated on an outpatient basis and one treatment takes approximately 15 minutes.

Please tell your "pain" patients about the real advantages and the chances of healing with the **Piezason 100 *plus*** and shock wave therapy. The versatility of the **ESWT/TPST** unit means that you can plan individual therapies, opening the door to new patients and providing economic impetus.

An opportunity to increase the efficiency of your practice. We will be happy to support you in your efforts to gain new patients with posters, patient information sheets, professional instruction on the use of the system, further product information, studies and references.

Make your practice more attractive. Offer your patients more. You can increase the economic efficiency of your practice. Ask us about further information on the **Piezason 100 *plus***, our references and, if you wish, a consultation with your medical product advisor.

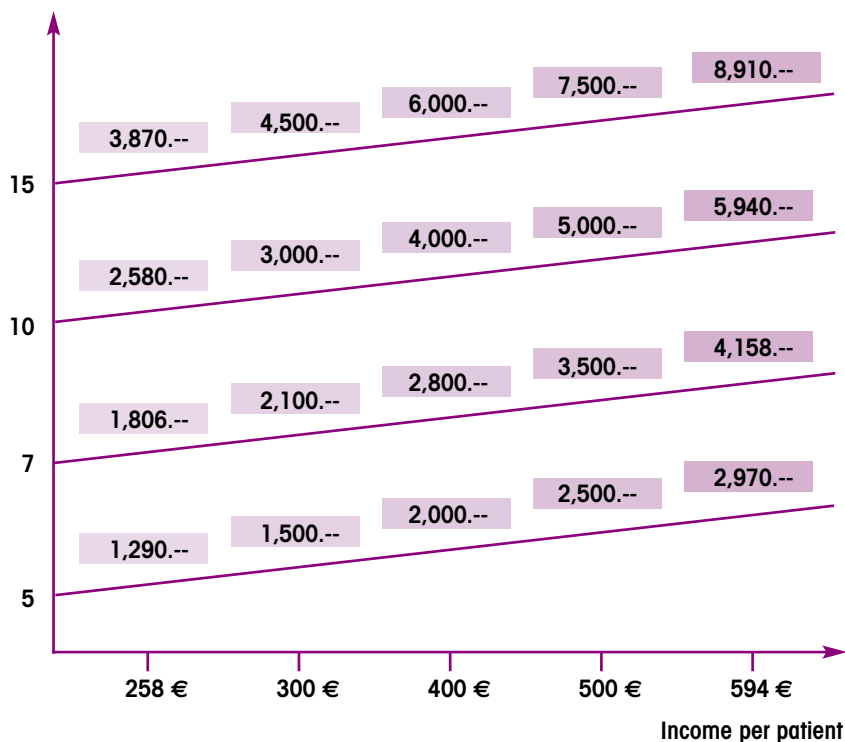
Profitability calculation for the Richard Wolf Piezason 100 *plus*

With the figures below, you can work out the break-even-point at which you

start to make money with the **Piezason 100 *plus***. The patient numbers are based on conservative assumptions.

Examples for cashing up

Number of patients per month

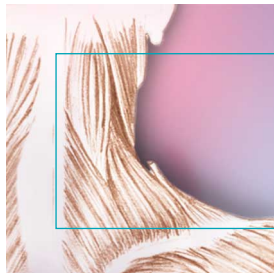


Calculation of the break-even point:

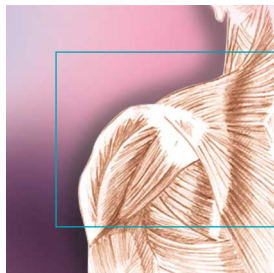
$$\text{BEP} = \frac{\text{Purchase price of the system}}{\text{Ø Turnover per month}}$$

The BEP shows you the number of months before the **Piezason 100 *plus*** has paid for itself.

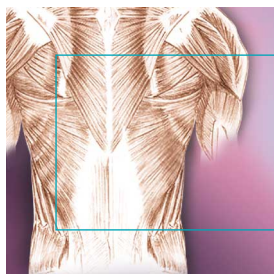
Trigger point shock wave therapy – TPST



Neck muscles



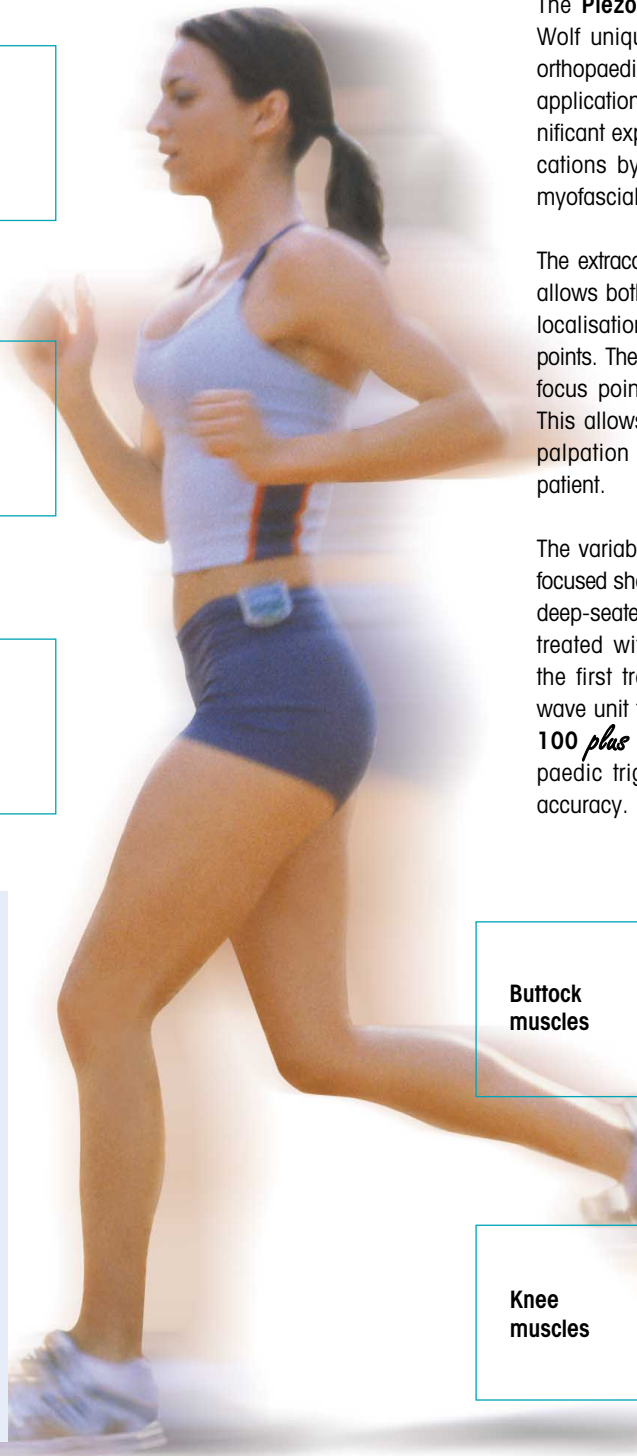
Shoulder muscles



Back muscles

Advantages in TPST

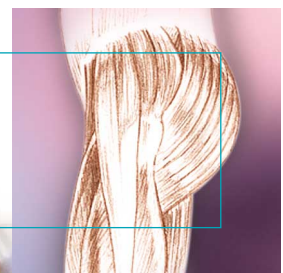
- Mobile and **focused** ESWT system
- Deep penetration **up to 55 mm**
- Treatment with a pulse frequency up to 8 HZ
- Precise localisation of trigger points
- Low risk of haematoma
- Broad range of applications
- Individual therapy options
- Long working life – extremely economical



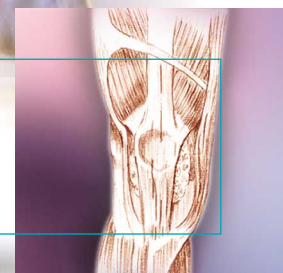
The **Piezoson 100 plus** from Richard Wolf uniquely combines and expands orthopaedic **ESWT** applications with the applications of **TPST**. This means a significant expansion of the range of applications by including the wide area of myofascial pain syndrome.

The extracorporeal, **focused** shock wave allows both the therapy and the precise localisation of active and latent trigger points. The trigger is excited by the small focus point of the **Piezoson 100 plus**. This allows precise localisation without palpation that is often painful for the patient.

The variable depth of penetration of the focused shock wave up to 55 mm allows deep-seated triggers to be localised and treated with accuracy. The system is the first transportable, focused shock wave unit for **TPST**. Using the **Piezoson 100 plus** you can perform all orthopaedic trigger therapies with extreme accuracy.



Buttock muscles



Knee muscles

Technical Data

Power supply	220-240 V / 115-127 V / 100-110 V		
Frequency	50 / 60 Hz		
Power consumption	100 VA		
Current consumption	0.46 A / 0.87 A / 1.0 A		
Directive for medical products 93/42/EEC	Class II b		
Weight	approx. 19 kg		
Dimensions L x W x H	510 mm x 320 mm x 160 mm		
Energy application	20 levels + 5 low intensity levels		
Pulse frequency	ESWT 0 - 4 Hz / TPST 0 - 8 Hz		
Therapy source	FB 7 G2	FB 10 G4	FB 12 G5
Depth of penetration	0 - 20 mm	0 - 40 mm	0 - 55 mm
Aperture angle	108°	94°	90°
Energy flux density (positive)	0.03 - 0.49 mJ / mm ²	0.03 - 1.05 mJ / mm ²	0.03 - 1.1 mJ / mm ²
Pressure range	12 - 58 MPa	11 - 126 MPa	11 - 122 MPa
Energy 5 MPa (total)	0.5 - 20 mJ	1 - 48 mJ	6 - 66 mJ

Piezoson 100 plus Basic Set

Name	Article No.
Control unit	100.414 / 100.407 / 100.402
FB 10 G4 therapy source	100.621
Optional Accessories	
FB 12 G5 therapy source	100.631
Articulated arm for piezo shock-wave source	100.921 / 100.926
Unit trolley	100.901
FB 7 G2 therapy source	100.601
Carrying case for control unit	15583.881
Carrying case for applicator	15583.883

For further information, contact us quoting info / service no. ESWT 604 or contact Richard Wolf directly, Tel.: ++49 (0) 7043 - 35-157.