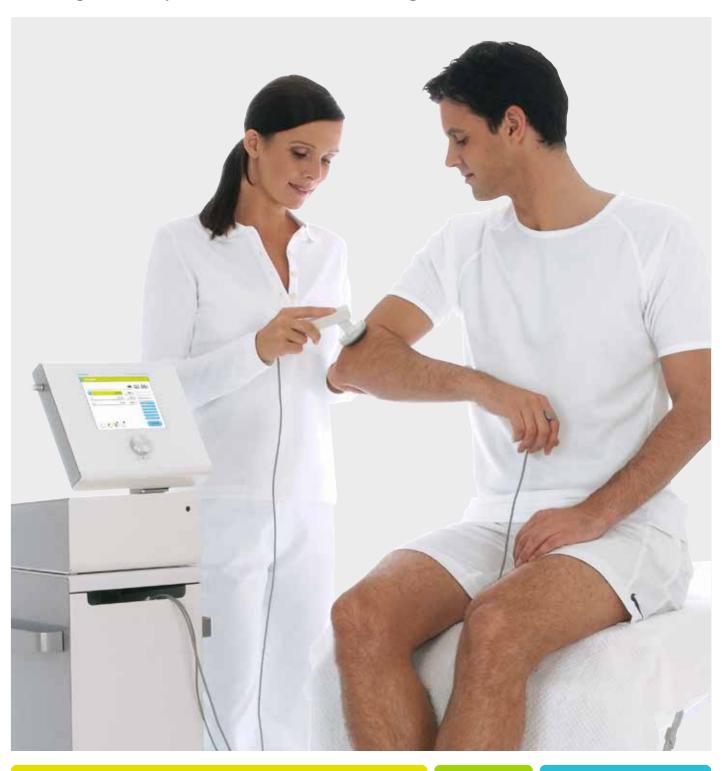
DEEP OSCILLATION®

Unique, non-invasive, atraumatic therapy technique with significant pain and oedema relieving effects





DEEP OSCILLATION®

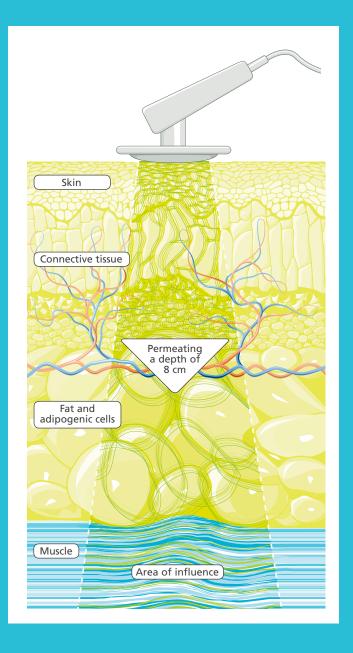
DEEP OSCILLATION® is a unique international patented non-invasive, non-traumatic therapy method. Its special structure allows you to create biologically effective oscillations in the treated tissue using electrostatic attraction and friction. In contrast to other therapies, these pleasant oscillations have a gentle and deep-acting effect on all tissue components (skin, connective tissue, subcutaneous fat, muscles, blood and lymph vessels).

For the treatment, the patient holds a titanium neutral element loosely between the fingers. The pleasant therapy effect of deep oscillation is created beneath special gloves of the therapist or a specially designed hand applicator (second contact) circling over the tissue.

The following effects of DEEP OSCILLATION® are clinically proven

- » High pain-reducing potential (both for acute traumatic and chronic pain syndromes)
- » Prevention and reduction of secondary and primary lymphoedema
- » Anti-inflammatory effect
- » Preventive fibratic conversion processes, fibrasis reduction
- » Muscular relaxation, movement-promoting effect, mobilisation
- » Promotes wound healing, particularly for secondary wounds and burns
- Normalisation of haemodynamic skin parameters and influence on biological ageing through preventive impact on premature ageing

The exceptionally gentle action, early implementation and specific clinical effects make DEEP OSCILLATION® a unique therapy option, which is being used increasingly in medical fields that are not typically focused on by conventional physical therapies.



Fields of application of DEEP OSCILLATION®:

PRE- AND POSTOPERATIVE THERAPY

With deep oscillation, oedemas and haematomas can be relieved pre- and postoperatively considerably faster than with conventional therapies. Because it can be used at an extremely early stage, wound healing is stimulated and accelerated, local inflammation processes are inhibited and pain is significantly reduced over a sustained period. Scar quality is improved. deep oscillation is therefore frequently used as a routine adjuvant post-operative therapy, for instance in oncology, neurology and traumatology. Due to its very gentle therapeutic effect it is used as a first line therapy for conditions after e.g. mastectomy, Caesarean section, osteosynthesis, endoprosthesis etc.

LYMPHOEDEMA

Use of deep oscillation reduces volume in the case of primary and secondary lymphoedema. The therapy is also increasingly used with success for lipoedema. deep oscillation has a preventive and anti-fibrotic effect: incipient fibrosis in particular can be treated effectively. Skin conditions and lymphatic drainage are improved.

MECHANICAL TRAUMATA AND DAMAGE FROM OVERSTRAINING

In the case of traumata and damage from overstraining, deep oscillation has a direct oedema- and pain-reducing effect and consecutively stimulates self-mobilisation in pain-relieved areas, thus enabling an early return to active life. For sportspersons it means an earlier commencement of active forms of therapy and training, for 'normal' patients a swifter return to activities in daily life.

TRAINING AFTERCARE AND PERFORMANCE STABILISATION IN SPORT

In training aftercare, deep oscillation is known for its rapid, muscle-relaxing and pain-relieving effects, and for its direct effect against microtrauma (muscle aches). Roughage and cell remains are removed more quickly through the treatment. This

promotes a more effective nutritional supply to the muscle cells, thus accelerating the restoration to optimal performance. Regeneration times in the systematic training process can thus be reduced.

SECONDARY WOUND HEALING

Deep oscillation is being increasingly used for secondary wound healing, regrettably often as a last resort. deep oscillation is an efficient adjuvant treatment option in the case of both post-operative and diabetic wound healing disorders and oedema-induced secondary wound healing.

BURNS

In the case of second-degree burns wound healing is significantly accelerated and qualitatively improved by deep oscillation.

CHRONIC PAIN SYNDROMES

In indications such as fibromyalgia syndrome, Sudeck's dystrophy etc., which are accompanied by chronic pain, deep oscillation has a strong pain relieving effect, which often allows for a reduction of medicine intake. The treatment promotes mobilization to a great extent, alleviates muscle stiffness and tackles impairments in activities of daily life, with consequent positive effect on fatigue, fears and depression.

NEUROREHABILITATION

In brain stoke rehabilitation deep oscillation is used for semi-paralysed regions of the body to improve trophicity and reduce spasms in affected areas, and also for lymphatic drainage, for instance to treat lymphoedema in the head area. The therapy is also used with great success for children with cerebral palsy and tetraplegia to reduce spasms and treat bowel obstipation.

Deep oscillation is recommended by:

Lymphedema Clinic Wittlinger www.lymphedema-clinic.com

Center for excellence in lymphedema treatment Lymphedema rehabilitation center - Treatment Academy - Training - Research









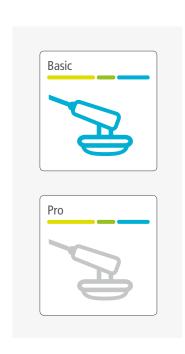
DEEP OSCILLATION®Personal

Deep oscillation unit for mobile use or to continue treatment at home



DEEP OSCILLATION® Personal can be used to read and retrieve program sequences previously written on the DEEP OSCILLATION® therapy card with the DEEP OSCILLATION® Evident unit in the clinic. This enables personalised mobile therapy on the ward and continuation of treatment in the patient's home according to the desired specifications. This way you can guarantee the sustainability of your treatments until the next appointment in your clinic or treatment room.

DEEP OSCILLATION® Personal is also available with the Basic and Pro therapy cards. The Basic version offers a wide selection of the most important indication settings with pre-programmed treatment parameters, which usually consist of different treatment sections of different frequencies. In addition, the Pro therapy card allows all parameters to be set manually as required for up to three therapy sequences of a treatment.





SPECIAL FEATURES **DEEP OSCILLATION®**

One-channel deep oscillation

Frequency range from 5 – 250 Hz

Contact elements made from biocompatible titanium

1) Special hand applicators in various sizes for both large or local treatments with easily replaceable treatment membranes for hygienic application (optional accessory)

GENERAL FEATURES

Intuitive PHYSIOMED one-button operation

Colour monitor

Comprehensive overview of the therapy parameters

Fastest therapy start over the indication index* or programmable therapy card DEEP OSCILLATION® therapy card

Extensive treatment index* featuring therapeutic information, dosage proposals and application graphics

Battery-driven

**in combination with Basic oder Pro therapy card



STANDARD ACCESSORIES PRO

- [1] Applicator handhold set, consisting of:
 - 1 Hand applicator set 2 Oscillator-head Ø 5 cm

 - 2 Oscillator-head Ø 9,5 cm 1 Connection cable DEEP OSCILLATION®
- [1] Charging device
- [1] Connection cable DEEP OSCILLATION®
- [1] Connection cable grey for adhesive electrodes
- [1] Operating instructions
- [1] PHYSIOPADS adhesive electrode for DEEP OSCILLATION® (set of 4)
- [1] Powder
- [1] Special gloves size M (100 pcs.)
- [1] Therapy card Pro
- [1] Titanium neutral element
- [1] Transportation bag

TECHNICAL DATA

Protection class	II, type BF
Input voltage	7.2 VDC
Input current	1.3 ADC
Power supply	1 x 7.2V Li-lon 24 Wh battery
Output voltage max.	400 Vs
Load impedance	10 ΜΩ
Output frequency	5 – 50 Hz
Dimensions (W x H x D)	100 x 31 x 190 mm
Weight	0.5 kg
Charging device:	
Power connection	100 – 40 VAC
Mains frequency	50 – 60 Hz
Current consumption max.	0.35 A

STANDARD ACCESSORIES BASIC

[1] Applicator handhold

[1] Card Basic

[1] Charging device

[1] Connection cable DEEP OSCILLATION®

[1] Connection cable grey for adhesive electrodes

[1] Operating instructions

[1] Oscillator-head Ø 5 cm

[1] PHYSIOPADS adhesive electrode for DEEP OSCILLATION® (set of 4)

[1] Powder

[1] Special gloves size M (100 pcs.)

[1] Titanium neutral element

[1] Transportation bag

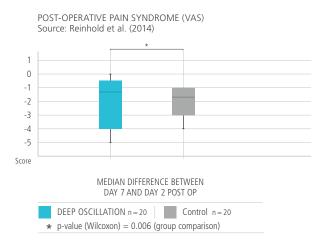


Clinical effects and studies

PAIN REDUCTION

Many medical studies show that deep oscillation reduces pain. The effect in the case of trauma-induced pain is seen in a reduction of noxious inflammatory potential (inflammation syndrome and, among other, Calor, tissue acidosis and prostaglandin) of TRPV1 pain receptors, explained by the mechanical distribution and intensified interstitial drainage via deep oscillation.

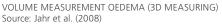
In an ex-vivo study Boisnic and Branchet (2013) found significantly fewer TRPV1-expressing keratinocytes than in the control group following deep oscillation treatment. The findings from ex-vivo skin models also confirm a statistically significant pain-reducing potential through deep oscillation.

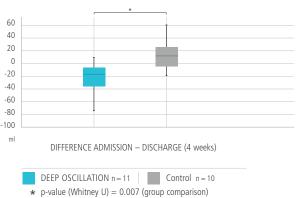


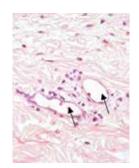
VOLUME CHANGE

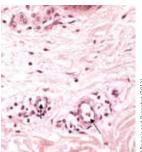
Several studies confirm the oedema-reducing effect of deep oscillation. Oscillation effects a 'stirring' of the basic substance, thus promoting the removal of interstitial fluid and substances (proteins, cell debris, neurotransmitters etc.). Interstitial septa and fissures are kept open by the mechanical activation, which helps interstitial drainage. This significantly reduces both local oedema and aseptic inflammation. Proof was also established of a significant reduction in swellings in the area of the wound, due to the treatment. In chronic conditions the treatment helps to disperse fibrosis and to diminish hardening of the tissue.

Ex-vivo tests show that deep oscillation also results in a significant reduction of dermal oedema compared to the control group. Significantly lower values than in the control group were also recorded in the histological evaluation of the percentage of dilated capillaries in the treatment group. Clear differences were likewise established in a histological planimetric measurement of the surface of dilated dermal capillaries (Boisnic and Branchet 2013). The findings suggest a vasomodulating effect (moderate vasoconstriction) of capillaries as a mechanism with an antioedematous effect prompted by deep oscillation.







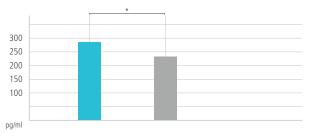


Analysis of vasodilation following HE staining (x 400): untreated skin model (on left). Vasoconstriction of dermal capillaries following two treatments with DEEP OSCILLATION® (on right).

ANTI-INFLAMMATORY EFFECT

Deep oscillation checks acute and chronic inflammation by confining inflammation-promoting cell movement to the affected area. This is achieved by reducing the production of inflammation mediators and minimising water and protein loss from blood and lymph vessels. The findings of a study (ex-vivo) by Boisnic and Branchet (2013) confirm these clinical experiences: DEEP OSCILLATION® achieves a significant reduction in the prominent pro-inflammatory cytokine IL-8 compared to the control group.





MEDIAN DIFFERENCE BETWEEN GROUP COMPARISON POST INTERVENTIONEM



The physiological effectiveness of deep oscillation has been documented in numerous publications based on experimental and clinical studies:

Aliyev R., Mikus E.W.S., Reinhold J.G. (2008): Hochsignifikante Therapieerfolge mit DEEP OSCILLATION® in der orthopädischen Rehabilitation. Orthopädische Praxis 44, 448-453.

Aliyev R.M., Reinhold J., Seidov I.I., Mikus E.W.J. (2009): Ergebnisse mit DEEP OSCILLATION® bei Verletzungen des oberen Sprunggelenkes. Orthopädische Praxis 45, 502-506.

Aliyev R. (2009): Klinische Wirksamkeit des Therapieverfahrens Tiefenoszillation bei Sportverletzungen. Sportverl Sportschaden 23, 1-4.

Aliyev R.M. (2012): Better Functional Results of Conservative Treatment in Fresh Lateral Ligament Injuries of the Ankle with Additional Deep Oscillation. Phys Med Rehab Kuror 22, 9–15.

Andreev A. (2015): Deep oscillation, kinesiotaping and exercises in amateur football players after ACL reconstruction. XXIV International Conference on Sports Rehabilitation and Traumatology. London, page 1

Boisnic S., Branchet M.C. (2013): Anti-inflammatory and draining effect of the Deep Oscillation® device tested clinically and on a model of human skin maintained in survival condition. Eur J Dermatol 23(1), 59-63.

Bolaños F. (2009): Efectividad de las oscilaciones profundas Hivamat personal en la patalogía artrósica de rodilla: Estudio de caso en adultos mayores. Universidad Santa Paula.

Fistetto G., Iannitti T., Capone S., Torricelli F., Palmieri B. (2011): Deep Oscillation®: esperienze terapeutico-riabilitative con un nuovo innovative strumento ad azione elettrostatica. Minerva Med 102(4), 277-88.

Gao Y.-C., Peng C.-C., Peng R.Y. (2015): A long term chronic fibrotic adhesion of elbow muscles alleviated by applying hivamat 200 deep oscillation therapy. International Journal of Multidisciplinary Research and Development 2(1), 286-289.

Gasbarro V., Bartoletti R., Tsolaki E., Sileno S., Agnati M., Coen M., Conti M., Bertaccini C. (2006): Ruolo dell'oscillazione profonda (Hivamat® 200) nel trattamento fisico del linfedema degli arti. La medicina estetica 30(4), 473-478.

Gasbarro V., Bartoletti R., Tsolaki E., Sileno S., Agnati M., Conti M., Bertaccini C. (2006): Role of Hivamat® (deep oscillation) in the treatment for the lymphedema of the limbs. EJLRP 16(48), 13-15.

Hernández Tápanes S., Suárez A., Bravo Acosta T., Wilson Rojas R., Fernández Prieto B., Cabrera Morales M. (2009): Valor de la terapia con oscilaciones profundas en la cicatrización de las quemaduras AB. Rev Cub MFR 2(1) [revista en la Internet]. Cited 05.02.2016; available from www.sld.cu/verpost.php?pagina=1&blog=http://articulos.sld.cu/revrehabilitacion/&post_id=171&c=3734&tipo=2&id-blog=110&p=1&n=dee.

Hernández Tápanes S., Socas Fernández M., Iturralde Y., Addiel Suáres Fernández A. (2018): The Effect of Deep Oscillation Therapy in Fibrocystic Breast Disease. A Randomized Controlled Clinical Trial. International Archives of Medicine Vol. 11 No. 14. doi: 10.3823/2555.

Hinman M.R., Lundy R., Perry E., Robbins K., Viertel L. (2013): Comparative Effect of Ultrasound and DEEP OSCILLATION® on the Extensibility of Hamstring Muscles. Journal of Athletics Medicine 1(1), 45-55.

Horn A., Mischler B. (2015): Kurzzeitwirkung von Tiefenoszillation auf die Fein- und Grob-motorik bei Multiple-Sklerose-Patienten und -Patientinnen mit Funktionseinschränkungen der Hand: Eine Einzelfallstudie. Berner Fachhochschule Fachbereich Gesundheit.

Ivanova D.A., Khan M.A., Lyan N.A., Mikitchenko N.A. (2015): The application of the pulsed low-frequency electrostatic field for the combined treatment of the children presenting with bronchial asthma. Voprosi Kurortologi, Fosioterapi i Letschebniy Fisitscheskoi Kulturiy 4 (30-35). doi: 10.17116/kurort.2015.430-35.

Jahr S., Schoppe B., Reisshauer A. (2008): Effect of treatment with low-intensity and extremely low-frequency electrostatic fields (Deep Oscillation) on breast tissue and pain in patients with secondary breast lymphoedema. J Rehabil Med 40(8), 645-50.

Johanning-Csik F. (1994): Behandlung postpartaler Brustschmerzen und -spannungen mit dem Intensivierungssystem Hivamat. Medical dissertation. Erlangen - Nürnberg.

Khan M.A., Ivanova D.A., Ljan N.A., Lukina O.F. (2012): Application of the pulse low-frequency electrostatic field at bronchial asthma of children. Russian Journal of Rehabilitation Medicine 1, 21-32.

Kashilska Y., Petkov A., Micheva P., Batashki A., Batashk Z. (2015): Improving the quality of life through effects of treatment with low intensity extremely low-frequency electrostatic field with DEEP OSCILLATION® in patients with breast cancer with secondary limfadem to patients treated with standard lymph equipment. Medicine V(1), 381-387.

Korkina L., Reinhold J., Rota L., Primavera G., Raskovic D. (2007): Treatment of Gynoid Lipodystrophy (Cellulite) with Deep Oscillation®: A Pilot Clinical Study. 29th Annual Meeting of The Bioelectromagnetics Society. Kanazawa, 2.

Kraft K., Kanter S., Janik, H. (2013): Safety and effectiveness of vibration massage by deep oscillations: a prospective observational study. Evid Based Complement Alternat Med.; 2013:679248. doi: 10.1155/2013/679248. Epub 2013 Oct 3.

Mikhalchik E., Titkova S., Anurov M., Suprun M., Ivanova A., Trakhtman I., Reinhold J. (2005): Effects on blood parameters of Deep Oscillation. 1st International Conference on Skin and Environment. Moscow-St. Petersburg, 59.

Mikhalchik E., Titkova S., Anurov M., Suprun M., Ivanova A., Trakhtman I., Reinhold J. (2005): Wound Healing Effects of Deep Oscillation. 1st International Conference on Skin and Environment. Moscow-St. Petersburg, 71.

Nourollahi S., Mondry T.E., Herbst K.L. (2013): Bucher's Broom and Selenium Improve Lipedema: A Retrospective Case Study. Altern Integ Med 2(4), 119.

O'Brien C.P., Watson A. (2016): Deep Oscillation® Therapy in the Treatment of Lateral Epicondyalgia: A Pilot Randomized Control Trial. J Sports Med Doping Stud 6(3), dx.doi.org/10.4172/2161-0673.1000180.

Reinhold J., Deeva I., Korkina L., Schaper K., Krummenauer F. (2014): Randomisierte Pilotstudie zur Quantifizierung des patientenseitigen Nutzens der Beeinflussung primärer Wundheilungsprozesse durch Tiefenoszillation. Z Orthop Unfall 152(3), 260-264.

Sänger H.-F. (1995): Der Einfluß von HIVAMAT® 200 (histologisch-variable Technik) auf die Entstehung der radiogenen Fibrose bei brusterhaltend therapierten Patientinnen mit Mammakarzinom. Medical dissertation, Erlangen - Nürnberg.

Scannavini P., Bitocchi M., Rossi M., Girvasi L. (2012): Lesioni muscolari da sport: percorsi di riatletizzazione. Scienze motorie, ortopediche, riabilitative 60, 31-35.

Schönfelder G., Berg D. (1991): Nebenwirkungen nach brusterhaltender Therapie des Mammakarzinoms. Erste Ergebnisse mit Hivamat. gynäkol. prax. 15, 109-122.

Sporbeck B., Mathiske-Schmidt K., Jahr S., Huscher D., Becker M., Riemekasten G., Taufmann I., Burmester G.R., Pögel S., Reisshauer A. (2011): Effect of biofeedback and DEEP OSCILLATION® on Raynaud's phenomenon secondary to systemic sclerosis: results of a controlled prospective randomized clinical trial. Rheumatol Int 32(5), 1469-73.

von Stengel S., Teschler M., Weissenfels A., Willert S., Kemmler W. (2018): Effect of Deep Oscillation as a Recovery Method after Fatiguing Soccer Training: A Randomized Cross-Over Study, Journal of Exercise Science and Fitness, doi:10.1016/j.jesf.2018.10.004.

Teo I., Coulborn A., Munnock D.A. (2016): Use of the HIVAMAT® 200 with manual lymphatic drainage in the management of lower-limb lymphoedema and lipoedema. Journal of Lymphoedema 11(1), 49–53. Theys S., Deltombe T., Legrand C., Hanson P. (2008): Manual Drainage with or without DEEP OSCILLATION® in Lower Extremity Oedema. J Rehabil Med Suppl 47, 62.

Trybulski R. (2008): Wykorzystanie сістему hivamat 200 w leczeniu ran. Rehabilitacja w Praktyce 1, 28-33.

Trybulski R. (2008): Wykorzystanie cystemu Hivamat 200 w leczeniu ran. Rehabilitacja w Praktyce 1, 28-33.

Trybulski R. (2016): Fizykalne metody drenażu limfatycznego we wczesnej fazie fizjoterapii pourazowej narządu ruchu, 27-42.

 $\label{thm:condition} \mbox{Trybulski R. (2016): Metoda DEEP OSCILLATION w leczeniu zespołu stopy cukrzycowej. PRAKTYCZNA fizjoterapia \& rehabilitacja 68, 22-29.$

Trybulski R., Żebrowska A. (2016): Obrzęk Limfatyczny/Lymphatic Oedema. Międzynarodowa Konferencja Sekcji Limfologicznej Polskiego Towarzystwa Flebologicznego 22-23. Scientific Poster at International Congress of the Lymphology Section of Polish Society of Phlebology. Wrocław, April 22-23.

Trybulski R., Żebrowska A., Marcol W., Roczniok R., Kepa K., Kiljański M. (2016): Wykorzystanie glębokiej oscylacji i elektrostymulacji mięśni gładkich w niwelowaniu wybranych parametrów zmęczenia mięśniowego. Fizjoterapia Polska 2(16), 14-30.

Winkelmann Z.K., Roberts E.J., Games K.E. (2018): Acute Effects and Perceptions of Deep Oscillation Therapy for Improving Hamstring Flexibility. Journal of sport rehabilitation 2018 Jun 25:1-7. doi: 10.1123/jsr.2017-0044.

Yashkov A.V., Gazdieva E.M., Badyanova I.S. (2007): Efficacy of intermittent low-frequency electrostatic field in the sanatorium-based complex treatment of patients with chronic obstructive pulmonary disease. Kurortniye Vedmosti 3(42), 62-63.

Zebrowska A.,Trybulski R., Roczniok R., Marcol W. (2017): Effect of Physical Methods of Lymphatic Drainage on Postexercise Recovery of Mixed Martial Arts Athletes. Clin J Sport Med 2017;0:1–8. doi: 10.1097/JSM.000000000000485.

Zehtindjieva M.G., Ioshinov B.R., Andonov D.R., Ilkov V.S., Bayraktarova A. (2013): Deep Oscillation – A Modern Additional Physical Modality For Analgesia In Patients With Back Pain. PRAE-MEDICUS 29, 85-90.



Additional accessories for DEEP OSCILLATION®

» A DEVICE-RELATED OVERVIEW OF THE WHOLE RANGE OF ACCESSORIES CAN BE FOUND WITH THE PRODUCTS UNDER "Additional accessories" AT WWW.PHYSIOMED.DE







OSCILLATOR HEAD

Oscillator head		
Ø	for applicator handhold	Order number
1,5 cm	#00396	00387
5,0 cm	#00379	00381
9,5 cm	#00379	00386



MEMBRANE SET (10 PIECES)

Membrane for oscillator head		
Ø	Order number	
1,5 cm	00393S	
5,0 cm	00391S	
9,5 cm	00392S	

- Membrane set consisting of special conductive foam, conductive bond and membrane
- Fixation of the membrane between oscillator disc and clamping ring
- Easy exchange



APPLICATOR HANDHOLD

Order number: 00379 Oscillator heads of different sizes may be fixed on the applicator handhold





PIN APPLICATOR

Order number: 00396

Enables self treatment in small treatment areas Plug connection in the handhold for spiral cable #356 Suitable for oscillator head 1.5 cm (#387)



TITANIUM NEUTRAL ELEMENT

Order number: 00382 Neutral element made from biocompatible titanium (implant quality)



MONOUSE ADHESIVE ELCTRODE

Order number: 00353

Monouse adhesive electrode for deep oscillation Adhering hydro gel

Quantity: 60 electrodes per pack



SPIRAL LEAD UNIVERSAL

Order number: 00356

Connection cable between deep oscillation unit and pertaining applicator handhold (#379) or titanium neutral element (#382) Spiral cable Length (extended) in cm : appr. 300 4 mm safety plug on both ends



CONNECTION CABLE GREY FOR ADHESIVE ELECTRODES

Order number: 00262



CONNECTION CABLE DEEP OSCILLATION®

Order number: 00261 Connection cable linking the patient lead DEEP OSCILLATION® (#260) or a DEEP OSCILLATION® Personal with either the titanium neutral element (#382) or the applicator handhold (#379).



Order number: 00348

Powder used with DEEP OSCILLATION® to reduce friction and keep the skin dry

Content: 100 g



SWEAT BAND WHITE (2 PIECES)

Order number: 00338 Elastic sweat band for fixation of adhesive electrodes Length x width in cm: 18 x 6 Quantity 2 pieces



SPECIAL GLOVES SIZE S

Order number: 00345 Special gloves for DEEP OSCILLATION® size S Quantity per pack: 100



SPECIAL GLOVES SIZE L

Order number: 00347 Special gloves for DEEP OSCILLATION® 200 size L Quantity per pack: 100



SPECIAL GLOVES SIZE XL

Order number: 00420 Special gloves for DEEP OSCILLATION® 200 size XL

Quantity per pack: 100 Powdered



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