



**LOSCH**  
MEDICAL



**NEPTUNUS** <sup>®</sup>  
*eMotion*

Instruction manual

Version 07-2022

## Instruction manual

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### Symbols



Attention! Warning notice

## 1. Preamble

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This manual describes how to operate and maintain the NEPTUNUS eMotion Lavage System. Please observe the following safety instructions before commissioning and always follow the instructions. Keep these instructions in a safe place for future reference.

## 2. Safety instructions

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The NEPTUNUS eMotion Lavage System must not be treated with lubricants, greases or oils of any kind.



Trained or medical personnel may only carry out the installation and reinstallation of accessories, especially the Disposable (flushing set), as well as the use of the NEPTUNUS eMotion Lavage System.



Do not operate the system if individual components are defective.



Check the cables regularly for damage and aging



Protect the cables from sharp edges, mechanical stress and hot surfaces.



Lay the cables so that no one can trip over them. Protect the power supply from moisture.

### 3. Product overview, scope of delivery and accessories



Figure 1: Neptunus eMotion Handpiece



Figure 2: Power supply, power cord, cable



Figure 3: Disposable

The NEPTUNUS eMotion Lavage System consists of:

- an electrically operated, resterilizable NEPTUNUS eMotion handpiece (Figure 1)
- a resterilizable NEPTUNUS cable (3.5m) with safety plug (Figure 2 right)
- a compact power supply (primary: 90..240V, 50/60Hz, secondary: 12V, 5A) (Figure 2 left) with power cords (Figure 2 middle)
- a sterile packaged disposable set (Figure 3)

Product overview NEPTUNUS eMotion Lavage System:

Item number	Designation	Quantity
NES	NEPTUNUS eMotion System	1 Set
NES-001	NEPTUNUS eMotion Handpiece	1 piece
NES-002	NEPTUNUS Cabel	1 piece
NES-003	NEPTUNUS Power supply with power cords	1 piece

NEPTUNUS eMotion Lavage Zubehör (Einmalset):

Item number	Designation	Quantity
OMP – 9100	NEPTUNUS Hip/knee set with suction	VE 10 pieces

#### 4. Intended purpose

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The NEPTUNUS eMotion Lavage System is an electrically operated, medical wound irrigation system. With this device many work processes in operative medicine are significantly simplified, accelerated and especially in terms of effectiveness improved. The system pumps the liquid from a container and dispenses it via a disposable.

The system can be used for:

- Intraoperative wound irrigation
- Preparation of implant bearings for joint replacement operations (endoprosthetics)

The system may only be used in the operating area.

It is not suitable for use in residential environments.

The possible treatment covers all patient groups except children and pregnant women.

The system is not to be used for:

- neurosurgery
- spinal surgery
- Ear, nose and throat surgery
- Oral and maxillofacial surgery

The system must not be used simultaneously with HF devices.

#### 5. General notes

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- The NEPTUNUS eMotion handpiece is sealed against the ingress of liquids.
- The electrical cable and the NEPTUNUS eMotion handpiece can be cleaned mechanically and are resterilizable.
- No sealing caps are required for the Neptunus cable plugs or the NEPTUNUS eMotion handpiece.
- The power supply unit and power cord must not be sterilized.
- The NEPTUNUS eMotion handpiece, Neptunus cable, power supply unit and power cord are maintenance-free.
- The NEPTUNUS eMotion handpiece and the NEPTUNUS eMotion cable must be cleaned and sterilized before each use.
- All attachments and components must be separated before disinfection and cleaning.
- Frequent reprocessing has only a minor effect on the service life of the components.
- Compliance with the respective specifications (according to DIN EN ISO 17664) can significantly increase the reliability and service life of the components.
- The manufacturer accepts no liability for damage caused by improper operation or maintenance.
- The NEPTUNUS eMotion Lavage System is exclusively suitable for operation with the original accessories of LOSCH Medical GmbH as listed in Point 3. Accessories of other manufacturers must not be used with the NEPTUNUS eMotion Lavage System.

- Any handling of the NEPTUNUS eMotion Lavage System requires precise knowledge and observance of these instructions for use. Liability for the safe functioning of the NEPTUNUS eMotion Lavage System is in any case transferred to the operator if handling does not correspond to the intended purpose.
- Furthermore, LOSCH Medical GmbH accepts no liability for manipulations of the NEPTUNUS eMotion Lavage System.

## 6. Installation

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Set up and commission the power supply unit:

- Place the power supply close to an easily accessible power outlet.
- The power supply unit should be placed on a safe, solid surface.
- The voltage of the power source must match the specifications on the power supply nameplate.
- Connect the power cord to the power supply and to a wall outlet.



Figure 4: NEPTUNUS eMotion power supply (left) Power cord (middle) Device cable (right)



Figure 5: NEPTUNUS eMotion Power supply unit and power cord connected



Figure 6: Mains plug into socket

Connecting the NEPTUNUS eMotion cable to the NEPTUNUS eMotion power supply and the NEPTUNUS eMotion handpiece:

- Both connections of the NEPTUNUS eMotion cable and the connection of the power supply unit and the NEPTUNUS eMotion handpiece are identical.
- In the sterile OR area, connect the sterilized NEPTUNUS eMotion cable to the power supply by plugging one end of the cable into the socket on the front of the power supply. (see fig. 7)
- The plug and socket are marked red. The plug snaps into the socket with an audible click. (see fig. 8)
- The connection to the NEPTUNUS eMotion handpiece is made in the same way. (see fig. 9 and fig. 10)
- To remove the plug, grasp the safety sleeve (silver color) and pull it out of the socket. (see fig. 11 and fig. 12)

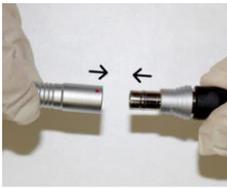


Figure 7: Device cable

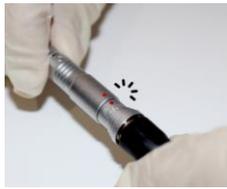


Figure 8: Device cable plugged in



Figure 9: handpiece and device cable



Figure 10: Device cable and handpiece plugged



Figure 11: handpiece and device cable



Figure 12: handpiece and device cable

### Operating modes:

- The NEPTUNUS eMotion Lavage System allows two different operating modes depending on the indication, which can be selected by pressing the buttons.
- When the upper button is pressed, the NEPTUNUS eMotion system operates at a high motor speed. The unit is in High mode. (=higher fluid output)
- When the lower button is pressed, the NEPTUNUS eMotion System operates at a low motor speed. The unit is in Low mode. (=lower fluid output)
- Pressing the buttons once starts the operation of the unit.
- Another press of any button stops the operation.
- Both operating modes (High, Low) are operated in continuous operation mode.



Figure 13: NEPTUNUS eMotion handpiece



The decision on the operating mode to be used is solely up to the user.

## Test run:



The NEPTUNUS eMotion handpiece should be turned on for a few seconds before use to check for irregular speed, extraneous noise, heat, or abnormal vibration



In the event of a malfunction of the NEPTUNUS eMotion handpiece, please contact your local sales representative immediately.

## Application:

1. Place the sterilized NEPTUNUS eMotion handpiece and the sterilized NEPTUNUS eMotion cable in the sterile surgical field.
2. Plug the plug of the power cord into a power outlet (Schuko socket).
3. Connect one end of the NEPTUNUS eMotion cable to the connector on the bottom of the NEPTUNUS eMotion handpiece.
4. Connect the other end of the NEPTUNUS eMotion cable to the power supply in the non-sterile operating area.
5. Check the sterile bag with the disposable sets for integrity.
6. Place the contents of the bag (disposable set) in the sterile operating field.
7. Connect the disposable kit to the NEPTUNUS eMotion handpiece.
8. Insert the suction tip / spike of the tube (from the disposable kit) into the saline solution bottle/bag. Hang the bottle/bag less than 1m above the handpiece.



If you hang the bag more than 1m above the handpiece, use the clamp to prevent liquid from dripping from the nozzle.

9. When using Art. No. OMP-9100 NEPTUNUS hip/knee set with suction: Connect the suction hose to the suction unit.
10. The replacement of the nozzles (short or long) is described as a pictogram on the back of the insert in the sterile bag (disposable set).
11. Open the clamp on the tube system (disposable set) to ensure the supply of saline solution.
12. Press and hold the trigger to vent the tubing system (disposable set).

## After use:

- Remove the NEPTUNUS eMotion cable from the NEPTUNUS eMotion handpiece and power supply.
- Remove the disposable tubing system from the NEPTUNUS eMotion handpiece.
- Disconnect the main plug of the power supply unit.
- Clean and sterilize the NEPTUNUS eMotion handpiece and NEPTUNUS eMotion cable as described in the Cleaning and Sterilization section.

## 7. Cleaning and Sterilization

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### Power supply unit cleaning:

1. Always disconnect the power supply unit from the main supply before cleaning.
2. Wipe the power supply carefully with a mild cleaning solution or disinfectant (e.g. Dr. Weigert neodisher Mediclean forte, Concentration 5-20ml/l (0,5-2%) max. 40°C) and a soft, fibre-free cloth.
3. Use procedures prescribed for your facility or an approved hygiene procedure.
4. No liquids may penetrate into the housing.
5. Do not sterilize the power supply unit or power cord.

### Cleaning NEPTUNUS eMotion handpiece and NEPTUNUS eMotion cable:

#### Manual pre-cleaning:

1. Wipe or spray the NEPTUNUS eMotion handpiece and NEPTUNUS eMotion cable with warm water and a mild commercial detergent or disinfectant (e.g. Dr. Weigert neodisher Mediclean forte, Concentration 5-20ml/l (0,5-2%) max. 40°C) immediately after use and allow the agents to take effect according to the manufacturer's instructions.
2. Remove all residues from the NEPTUNUS eMotion handpiece and the NEPTUNUS eMotion cable under running water with a soft brush or cloth.
3. Rinse the NEPTUNUS eMotion handpiece and the NEPTUNUS eMotion cable with clear water and dry with a fibre-free cloth.



Never clean the NEPTUNUS eMotion handpiece or NEPTUNUS eMotion cable in the ultrasonic cleaner or place it in disinfectant, salt solution or other corrosive substances.



Observe the exposure time of the respective disinfectant according to the application instructions.



Ensure that the control buttons can be operated correctly and that all residues have been removed.

#### Mechanical:

1. A mechanic cleaning procedure must be carried out after manual pre-cleaning. The NEPTUNUS eMotion handpiece and the NEPTUNUS eMotion cable can be machine cleaned at least 600 times.
2. NEPTUNUS eMotion handpiece and the NEPTUNUS eMotion cable can be cleaned in the thermal disinfectant. - Thermal disinfection 93 C° / Program Vario-TD – (recommended: Dr. Weigert neodisher Mediclean forte at 55°C for 10 Minutes, Concentration 2-10 ml/l (0,2-1,0%))
3. When removing, check for visible dirt and repeat the cycle if necessary or clean manually.

### Further hints:

The use of different cleaning agents and disinfectants is possible. The effectiveness and material compatibility must be clarified with the respective detergent manufacturers and checked under local conditions by a trained specialist.

Mildly alkaline or alkaline agents can be used.

The pH value may not exceed 11.0.

The use of alkaline cleaners leads to bleaching of the handpieces, but without functional impairment.



The NEPTUNUS eMotion handpiece and the NEPTUNUS eMotion cable must not be cleaned together with pointed or sharp objects or instruments, otherwise the membranes on the NEPTUNUS eMotion handpiece or the NEPTUNUS eMotion cable may be damaged!

### Sterilisation:

Packaging takes place in suitable sterilisation containers or sterilisation packaging

### The following validated sterilisation procedure is recommended:

fractionated pre-vacuum procedure with the following parameters:

Fractionated pre vacuum (4-fold)

Temperature: 134°C

Plateau time: 5 minutes (programs with longer plateau time are possible)

The sterile handpieces and cables must be stored under conditions protected against dust, moisture and re-contamination.



The manufacturer accepts no liability whatsoever for the sterility of products that have been cleaned and sterilized by the user.

## 8. Transport, storage, disposal

The NEPTUNUS eMotion Lavage System is packaged to protect it from transport damage.



Do not store in damp rooms or transport with damp objects.



Store and transport away from direct sunlight.



Ambient temperature

During operation: +15°C ... +40°C

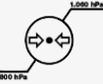
Storage and transport: -18°C ... +65°C



Relative humidity

During operation: 10% to 75% (non-condensing)

Storage and transport: 10% to 95% humidity



Atmospheric pressure 800 hPa to 1060 hPa



At the end of its service life, dispose of the unit in an environmentally friendly manner and in accordance with the respective country-specific disposal regulations.

Or send the unit back to the manufacturer or your specialist dealer for disposal. The system must not be disposed of with household waste.

## 9. Troubleshooting

The NEPTUNUS eMotion Lavage System does not contain any parts that can be repaired by the user himself. If malfunctions occur, please observe the following instructions.

malfunktion	solution notes
Device does not work when switched on	Check whether the plugs of the mains cable and the NEPTUNUS eMotion cable are plugged in.
The pumping capacity can no longer be varied	Send in device
The button for operation no longer works or is difficult to operate	Send in device
No liquid comes out of the nozzle	Check whether the flushing attachment is correctly fixed to the device. If necessary, use a new flushing attachment. Check whether the membranes on the handpiece and the flushing attachment are intact.
The device emits unusual or loud noises.	Switch off the device and try again. If the fault persists, send the device in.
The power supply unit or the device becomes unexpectedly warm.	Check whether the specified maximum operating time is exceeded. Switch off the device and cool it down. In case of renewed malfunction send in device.



If the malfunction persists, contact the manufacturer or your specialist dealer. Do not attempt to open or repair this product, as this will void the product warranty.

## 10. Maintenance

The device has been designed and manufactured for a long service life and is maintenance-free. The functionality, tightness, accuracy and condition of accessories must nevertheless be checked at regular intervals, at the latest every two years. Maintenance is the responsibility of the operator, who must ensure that the device is checked for proper condition.



All interventions in the existing system, changes to system components and repairs may only be carried out by the manufacturer.

## 11. Guarantee

The manufacturer grants 12 months guarantee on the function of the product. The period of validity of this guarantee is limited to claims, which are made within the stated period after the invoice date in writing and immediately, if necessary, with reference to repairs, stating the invoice number. Legal warranty claims are not limited by this warranty.

This warranty only applies to defects, which are not due to normal wear and tear, misuse, incorrect handling, external influences, inadequate or incorrect processing or force majeure.

All warranty claims are lost if the user himself or an unauthorised repair company carries out repairs or modifications to the product.

Liability claims resulting from improper use or combination with other devices or accessories cannot be asserted.

If you have not purchased the product directly from the manufacturer, please contact your sales partner for warranty processing.

## 12. General information

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The CE marking indicates that it complies with the regulations of the EU Medical Devices Regulation 2017/745/EU.

### Electromagnetic compatibility (EMC)

The device meets the EMC requirements of the international standard IEC60601-1-2 under the conditions described in the manufacturer 's declaration. It is intended for use in this electromagnetic environment. The operator is responsible for ensuring that the system is only used in such an environment.



Use of the NEPTUNUS eMotion Lavage System with non-approved accessories may adversely affect the device and alter the EMC.



Portable and mobile HF communication equipment may affect the unit. The device should not be used in the immediate vicinity or between other electrical devices

For product information of any kind, please

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### 13. Technical data

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#### NEPTUNUS eMotion Handpiece:

Dimensions length: approx. 11,1 cm  
Width: approx. 5,7 cm  
Height: approx. 16.4 cm  
Weight: approx. 705 g  
Power supply: external power supply unit  
Power consumption: 45 W max.  
Current: 3.9 A  
Voltage: 12 V

#### NEPTUNUS cable:

Length: 3,5 m  
Diameter: 4,2 mm

#### NEPTUNUS power supply:

Type: Bicker BET-0612M, AC/DC, PowerSupply  
Dimensions: 60x119x36mm  
Power consumption: 60 W  
Input: 100..240 V, 50/60 Hz  
Output Voltage: + 12 V  
Output current min.: 0 A  
Output current rated load: 5 A  
Ripple & Noise: <120mVss  
Efficiency: >=87%

#### Serial number:

On the handpiece there is a serial number (SN), which indicates the System uniquely identified.

#### Operating conditions:

Ambient temperature: 15 ~ 40°C / 59 ~ 104°F  
Relative humidity: 10 ~ 75% RH, non-condensing  
Atmospheric pressure: 600 ~1060 hPa  
Maximum continuous operating time, without interruption: 30 minutes

#### Protective equipment against electric shock:

Equipment of protection class II with internally operated energy.

#### Degree of protection against electric shock:

Type BF.

#### degree of protection against dust-penetration and water:

tight complete protection against contact, protection against temporary immersion



The NEPTUNUS eMotion Lavage System must not be used near flammable gases and air mixtures.

## Appendix I / EMC:



Medical electrical equipment is subject to special precautions with regard to EMC. The Neptunus eMotion system may only be installed and commissioned in compliance with the EMC instructions contained in this manual.



Portable HF communications equipment (including peripherals such as antenna cables and external antennas) should not be used closer than 30cm (12 inches) to any part of the Neptunus eMotion System, including cables specified by the manufacturer. Failure to do so may result in degradation of the performance of this device.



The Neptunus eMotion Lavage System or its associated power supply should not be placed immediately adjacent to or stacked with other equipment. If operation near or stacked with other equipment is required, the Neptunus eMotion Lavage System should be observed to verify its intended operation in this used arrangement.

These compliance tests were performed using the following power supply cables.

Fa. Bicker Elektronik GmbH - Type: BET-0612M

If other mains connection cables are used, the user must ensure that the model and quality are comparable.

Guidance and manufacturer's declaration - electromagnetic compatibility

### Emission

Test	Limit
Conducted emission	CISPR 11, Group 1, Class A
Radiated emission	CISPR 11, Group 1, Class A
Harmonic current emissions	IEC 61000-3-2, Class A
Voltage fluctuations and flicker	IEC 61000-3-3

## Immunity test levels

Test	Test Level
Electrostatic Discharge (IEC 61000-4-2)	Contact Discharge: $\pm 8$ kV Air Discharge: $\pm 2$ kV, $\pm 4$ kV, $\pm 8$ kV, $\pm 15$ kV
Radiated RF EM filed (IEC 61000-4-3)	80-2700 MHz; 1kHz AM 80 %; 3 V/m 385 MHz; Pulse Modulation: 18 Hz; 27 V/m 450 MHz, FM + 5 Hz deviation: 1 kHz sine; 28 V/m 710, 745, 780 MHz; Pulse Modulation: 217 Hz; 9 V/m 810, 870, 930 MHz; Pulse Modulation: 18 Hz; 28 V/m 1720, 1845, 1970 MHz; Pulse Modulation: 217 Hz; 28 V/m 2450 MHz; Pulse Modulation: 217 Hz; 28 V/m; 5240, 5500, 5785 MHz; Pulse Modulation: 217 Hz; 9 V/m
Proximity fields form RF wireless communications equipment (IEC 61000-4-3)	
Electrical fast transients / bursts (IEC 61000-4-4)	Power lines: 2 kV; 100 kHz repetition frequency Signal lines: 1 kV; 100 kHz repetition frequency
Surges (IEC 61000-4-5)	L-N: 1kV L-PE, N-PE: 2 kV
Conducted disturbances induced by RF fields (IEC 61000-4-6)	0.15-80 MHz; 1kHz AM 80 %; 3 Vrms, 6 Vrms in ISM radio band
Rated power frequency magnetic fields (IEC 61000-4-8)	30 A/m, 50 Hz
Voltage dips / Voltage interruptions (IEC 61000-4-11)	0 % UT for 0.5 cycle at 8 phase angles 0 % UT for 1 cycle at 0° 70 % UT for 25/30 cycles at 0° 0 % UT for 250/300 cycles 0°



The use of accessories, converters and cables not specified or provided by the manufacturer of this equipment may result in increased electromagnetic emissions or decreased electromagnetic immunity of this equipment and may result in improper operation.