



MINUS™

NEGATIVE PRESSURE WOUND THERAPY SYSTEM

WITH A FOCUS
ON MICRO LEVEL
STIMULATION



MAVERA®
medical devices
BEYOND FROM WITHIN™

2. Neigiamo slėgio žaizdų gydymo sistema

MinusTM Negative Pressure Wound Therapy System:

A “Revolutionary” Device That Offers Better Results

- Creating Subatmospheric Pressure with Vacuum Source
- O² and O³ to the Wound Bed
- Maintaining Wound Temperature and Humidity
- Wound Infection and Inflammation



Mechanism of Action

2.1 Portatyvi neigiamo slėgio žaizdų gydymo sistema

Negative pressure interacts with the wound environment at different levels. Affects both the macrostructure and microstructure of the lesion and all these effects at all stages of wound development. into a single complex activity that promotes wound healing integrates. At the macro level, NPWT secretions from the lesion and removes fluids, reduces edema around the wound, local increases blood flow and reduces ulcer size and external sources Reduces the risk of wound contamination¹.

At the micro level, negative pressure affects cell surfaces and many cellular elements present in the lesion (nuclear parallel to a change in transcription activity) The stimulation it exerts changes both the shape and function of cells. causes positive changes. Angiogenesis of NPWT, fibrogenesis and activity of macrophages and leukocytes has been shown to support².

Acute and chronic, from cardiac surgery to diabetic feet and wounds, from venous leg ulcers to pressure ulcers and in almost all clinical conditions relevant to wound management. A number of NPWT studies have been conducted and its activity has been Confirmed for most conditions³⁻⁶.

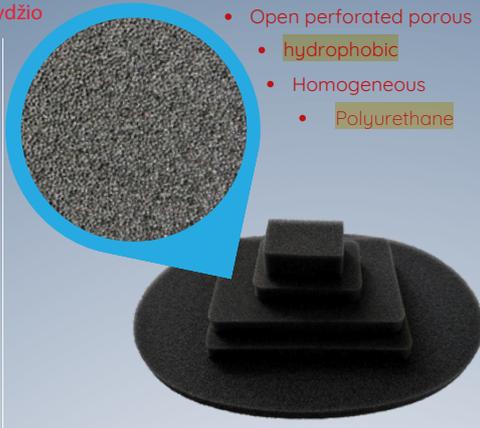
An interesting option regarding NPWT involves an antiseptic application. can be included. This means that antiseptics should treat the wound areas regularly. when they enter the system to wash it (in osteomyelitis as is) or used to fill the lesion occur when they are absorbed into the material.

New antiseptics have a better efficacy and safety profile and has been successfully tested under various conditions.

This situation requires indirect debridement of NPWT. Adds an antimicrobial effect⁷.

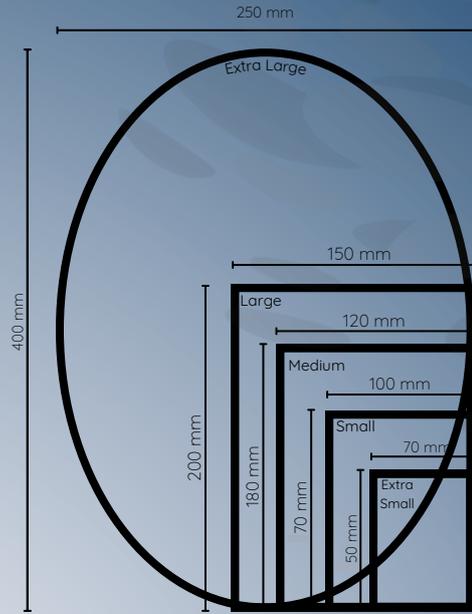
2.2; 2.3; 2.4 Tvarsčių rinkinys S dydžio, M dyžio, L dydžio

The closure set supports wound closure treatment with the help of negative pressure. It has hydrophobic properties and an open, porous structure, whose negative pressure can be distributed homogeneously over the entire wound surface. There is a connection hose that provides the connection between the dressing in the closure set and the therapy unit, and a drape that will allow separation of the patient and the therapy unit. The drape is resistant to factors such as maceration and position changes and maintains its integrity.



- Open perforated porous
- hydrophobic
- Homogeneous
- Polyurethane

Foam size (MNSS 70*100*20mm, MNSM 120*180*20mm, MSNL 150*200*20mm)



- 2.2.1 Sterilus rinkinys, kurį sudaro:
- 2.2.2 Poliuretalinė hidrofobinė, kempinė, išmatavimai 10 cm x 7 cm x 2 cm – 1 vnt.;
- 2.2.3 Slėgio perdavimo ir drenavimo jungtis – 1 vnt.;
- 2.2.4 Skaidri, lipni plėvelė, išmatavimas 20 x 30 cm – 1 vnt.;

- 4.2.1 Sterilus rinkinys, kurį sudaro:
- 4.2.2 Poliuretalinė hidrofobinė, kempinė, išmatavimai 15 cm x 20 cm x 2 cm – 1 vnt.;
- 4.2.3 Slėgio perdavimo ir drenavimo jungtis – 1 vnt.;
- 4.2.4 Skaidri, lipni plėvelė, išmatavimas 20 x 30 cm – 2 vnt.;

The closure set includes a connection hose that provides the connection between the dressing and the therapy unit and a drape that will allow separation of the patient and the therapy unit.



Resistant to factors such as maceration and position change

- 3.2.1 Sterilus rinkinys, kurį sudaro:
- 3.2.2 Poliuretalinė hidrofobinė, kempinė, išmatavimai 12 cm x 18 cm x 2 cm – 1 vnt.;
- 3.2.3 Slėgio perdavimo ir drenavimo jungtis – 1 vnt.;
- 3.2.4 Skaidri, lipni plėvelė, išmatavimas 20 x 30 cm – 2 vnt.;

drape (MNSS has 1pcs 20*30mm drape, MNSM has 2pcs 20*30mm drapes, MSNL has 2pcs 20*30mm drapes)

The film is sticky, ensures a vacuum and is non-allergenic.

transparent 2.7.2 Skaidri 2.7.5 Lipni, užtikrinanti vakuumą bei nealergizuojanti

Each set has 1 port pad. Port pad designed to remove secretions. With adhesive tip. Has additional protection (clip).

The dressing inside is resistant to tearing in wet conditions. The closure set is compatible with the apparatus that provides fluid delivery to the therapy unit, jewelry and the wound bed, and is sterile. The washing liquid is withdrawn from its sterile packaging and transmitted to the bed via the sterile apparatus and connection hose, without entering the device and without damaging its sterilization, automatically deactivating the negative pressure. Here, the liquid is kept for a certain period of time and after the waiting period, the negative pressure must be activated and the liquid must be withdrawn. The closure set is compatible with the therapy unit. The therapy unit used with the closure set can transmit pressure without deviation in negative pressure. (Within ± 5 mmHg standard deviation.)

- 2.5.1 Skirtas sekreto pašalinimui iš žaizdos
- 2.5.2 Su lipnių antgaliu
- 2.5.3 Turi papildomą apsaugą (segtuką) užtikrinanti saugų surinkimo indo keitimą

Connection Parts

Tightening Clamps



With the help of negative pressure, it can close the fascia earlier and speed up the treatment. The closure set has a hydrophobic perforated sponge that can distribute negative pressure homogeneously to the entire abdomen. It has the feature of providing separation between the abdominal wall and the viscera and protecting the abdominal contents. It has a single or two-layer silicone visceral layer. The closure set does not require sutures to place the visceral protective layer and facilitates re-entry into the abdomen. The visceral protective layer inside is made of material with organ protection properties and has a porous structure that can be cut and allows the passage of exudate.

The closure set transmits negative pressure through the hydrophobic perforated sponge and creates medial tension, minimizing fascial retraction and area loss. The coating set is disposable, sterile and presented in its original packaging. There is expiration date, UBB and LOT information on the packaging.



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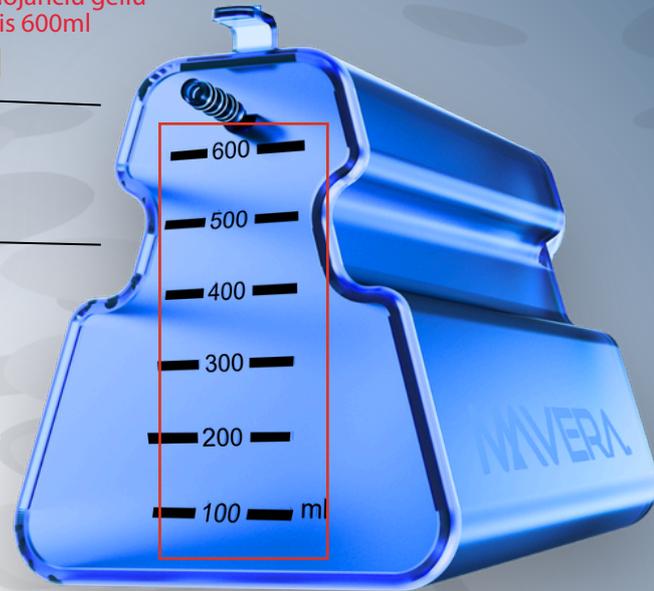
The collection set has one size 600ml. There are gel and non-gel varieties. It is fixed to the therapy unit via a mechanism. Where the therapy unit transmits negative pressure, there are carbon and similar filters that prevent odor, bacteria and liquid from passing to the outside.

- 2.8 Talpa (surinimo indas)
- 2.8.1 Uždara, sandari
- 2.8.2 Sugraduota
- 2.8.3 Su absorbuojančiu geliu
- 2.8.4 Talpos dydis 600ml

The collection set is fully compatible with the soft connection hose coming from the closing set and can be easily attached.

The collection container never leaks the waste materials it contains and there is no backflow. The collection set cannot be opened in any way, has no open ends and cannot be broken.

There is a material that allows the liquid inside to gel. The collection set is for single use. It is the same brand as the therapy unit and other consumables it will be used with.



- ± 5 mmHg deviation.
- Continuous/Intermittent + Variable negative pressure mode.
- Audio and visual warning system. (Clogging, leakage, low battery, collection container full, connection hose closed, etc.)
- Pressure values between 20-300mmHg.
- Adjustable timing system. 2.1.1 Slėgio diapazonas reguliuojamas ((-20) - (-300)) mmHg
- Phase selection. (Wash/Negative Pressure)
- Solution bag hanging apparatus integrated into the unit.

With the help of negative pressure, it can close the wound earlier and speed up the treatment. The closure set has a hydrophobic perforated sponge that can distribute negative pressure homogeneously to the entire abdomen. It has the feature of providing separation between the abdominal wall and the viscera and protecting the abdominal contents. It has a single or two-layer silicone visceral layer. The closure set does not require sutures to place the visceral protective layer and facilitates re-entry into the abdomen. The visceral protective layer inside is made of material with organ protection properties and has a porous structure that can be cut and allows exudate to pass through. The closure set transmits negative pressure through the hydrophobic perforated sponge and creates medial tension, minimizing fascial retraction and area loss.

Operating room, clinic etc. It provides one-on-one training to the personnel who will use the relevant product in the places when the first delivery is made. Trainings continue at periodic intervals upon institutional request. Periodic training is given using any of various training methods (visual, video, audio recording, user manual, face-to-face training). If there is a malfunction in the existing devices, the faulty device is received and the new device is delivered within 12 hours from the moment the hospital reports this situation. In case of any adverse event, a spare device is left to be used without interrupting the treatment or when the number of available devices is not sufficient.

Oxygen Supply to the Wound Bed

Oxygen is the basic requirement for all stages of wound healing. Oxygen serves as a nutrient for cell metabolism, phagocytes, and other cells of the immune system, which convert oxygen into reactive oxygen species (ROS) that are then used for wound healing. Oxygen also promotes angiogenesis by inducing vascular endothelial growth factor (VEGF) transcription and myofibroblast production and functions as a cofactor in collagen synthesis. Lack of oxygen in the wound bed hinders the healing process.

Oxygen needs to go deep into the transdermal layer. Minus™ Negative Pressure Wound Therapy System delivers O₂ to the wound bed with a low-frequency O₂ delivery system. Thus, the wound bed is fed with the oxygen needed by the healing process.

Maintaining Wound Temperature and Humidity

When the temperature drops, healing stops. Moreover, cooled tissues cause vasoconstriction and increase the oxygen demand of hemoglobin. As a result, less oxygen is available for the type of white blood cells called neutrophils to fight off any potential infection. Once wound tissues have cooled - for example, when left open during a dressing change - it may take up to 4 hours for the wound base to return to normal healing temperature. If the caregiver changes the dressing TID, the wound may be outside the optimal healing range 50% of the time.

The Minus™ Negative Pressure Wound Therapy System delivers thermally conditioned oxygen-rich solution to the wound bed at specific predetermined intervals. Thus, heat loss is eliminated as the temperature is kept at the optimum recovery level at 38°C. Moreover, the solution not only helps irrigate the wound bed at the target temperature and penetrate dead corners of the wound edges, but also helps retain moisture without masking the tissue surroundings⁹.

Wound Infection and Inflammation

The wound cannot be healed in the presence of debris, necrotic tissue and infection. Not only must there be effective removal of debris and necrotic tissue, but also a solution for infection must be provided. Mechanical removal of infection from the wound surface is important up to a point, but dead corners of the wound in general cannot be addressed.

The Minus™ Negative Pressure Wound Therapy System also uses oxygen-rich solution to help fight infection with the help of a pooling function at surface level and in dead corners. It allows the user to adjust the waiting time depending on the solution they administer to the wound bed if they do not want to use oxygenated solution¹⁰.



Creating Subatmospheric Pressure with Vacuum Source

The film has an opening into which the tube is attached. The tube is connected to a vacuum pump and canister where fluids are collected. It is possible to set the vacuum pump mode to run intermittently or start and stop. The vacuum pump draws fluid and infection from the wound. This will help bring the edges of the wound together. It also allows the wound to heal by encouraging new tissue growth. Antibiotics and saline solutions can be administered to the wound if necessary.



Indications

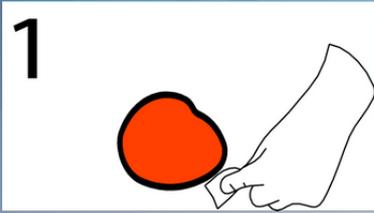
The MINUS™ Negative Pressure Wound Therapy System is a non-pharmacological method for patients who would benefit from a vacuum device. It is intended to be used to physically promote wound healing through irrigation and removal of fluids, including body fluids, wound exudates, and infectious materials. It is indicated for patients with Acute Wounds, Chronic Wounds, Pressure Ulcers, Diabetic Foot Ulcers, Venous Leg Ulcers, Traumatic wounds, Cleft wounds, Partial thickness burns, Flaps and grafts. No studies have been conducted on the use of the Minus™ NPWT System in pregnant and pediatric patients. It is the surgeon's responsibility to use the device in such patients. Patient weight and age should be taken into consideration when prescribing the device. Minus™ Negative Pressure Wound Therapy System (NBWT) is designed for use on acute and chronic wounds in continuous, intermittent and variable setting modes.

References

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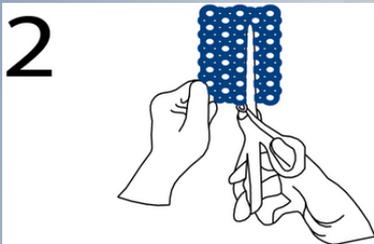
User's Guide

1



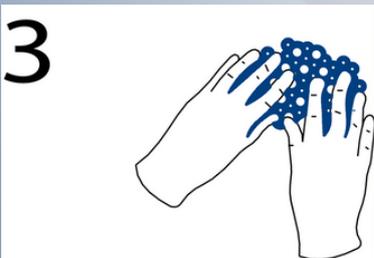
- The wound bed is prepared according to local health rules.
- Appropriate dressing sponge sizes are selected for the wound.
- The wound bed is cleaned and dried.

2



- Products are removed from their sterile packages according to aseptic techniques.
- Depending on the wound size, the sponge size is cut when necessary and other pieces are discarded.

3



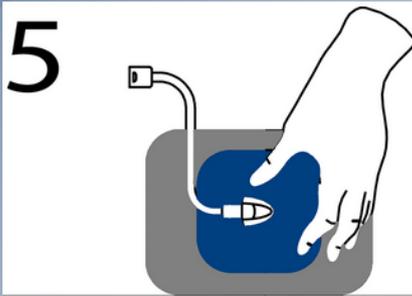
- Preferably, the wound bed is moistened with esef.

4



- The sponge is gently placed on the wound bed and it is ensured that the wound contour and the sponge are the same size. If more than one sponge will be used, make sure that these sponges are in direct contact with each other for an evenly distributed negative pressure. Count the number of dressing sets used and record this in the patient chart.
- Make sure the sponge is not in direct contact with healthy tissue.

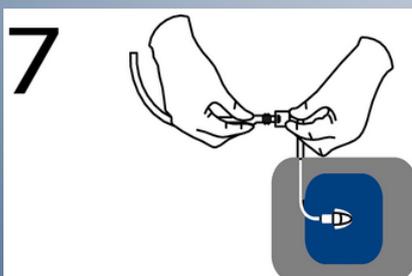
User's Guide



- Cut the drape to cover 3-5 cm of healthy tissue and make a circular hole with a diameter of 1 cm in the middle.
- Cover the drape with sponge and make sure it is leak-proof.



- Place the drape by centering the hole on it and make sure the hole is in the center.
- Attach the vacuum inlet port to the Canister.

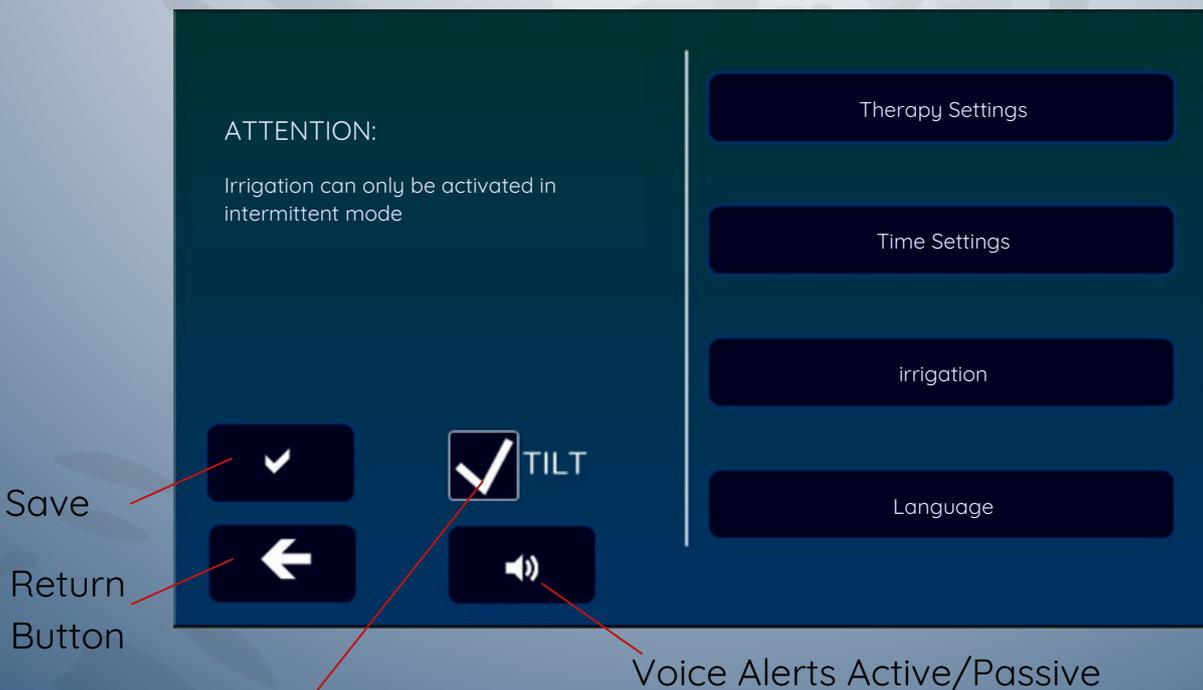


- Turn on the device and let the negative pressure begin.
- Make sure that the sponge has a hard structure and is airtight under pressure.
- Proceed according to the instructions for use of the NPWT device.
- The negative pressure level is determined by the physician according to the size and pathological condition of the wound.

Main Screen



Settings



Rollover Detection Sensor Active/Passive



Therapy Settings

2.1.2 Pasirenkami darbo režimai: 1. Nuolatinis; 2. Kintamas

Upper limit
work
Time

Continuous/Intermittent/Variable Mode

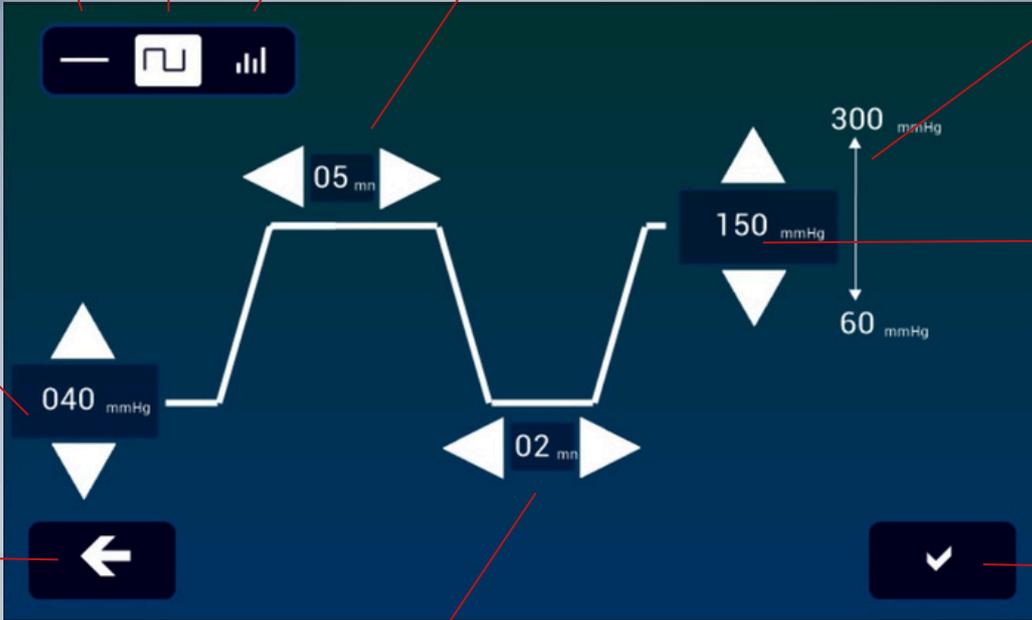
Selectable
Range
(≠300)

Negative
Pressure
Lowest
Limit

Negative
Pressure
Upper
Limit

Return
Button

Save



Lower Limit
work
Time

Irrigation Settings

Irrigation
Duration

ml/min
Options

Waiting Time
After Irrigation
and Before
Vacuuming

Save

Return
Button

The screen displays the following settings and options:

- Irigasyon Periodu: 05 min
- Dwell Periodu: 02 min
- Flow Rate Options (ml/min): 40, 36, 32, 28, 24, 20, 16, 12, 8, 4
- Navigation: Save (Checkmark), Return Button (Left Arrow)
- Menu Options: Therapy Settings, Time Settings, Irrigation (highlighted), Language



LIST OF PRODUCTS	REF NO	LIST OF PRODUCTS	REF NO
NBYT INCISIONAL CLOSURE SET LARGE (Sterile - Disposable)	MNSLUD	NPWT CLOSURE SET MEDIUM (Sterile - Disposable)	MNSM
NBYT INCISIONAL CLOSURE SET MEDIUM (Sterile - Disposable)	MNSMID	NPWT CLOSURE SET LARGE (Sterile - Disposable)	MSNL
NBYT INCISIONAL CLOSURE SET SMALL (Sterile - Disposable)	MNSSID	NPWT CLOSURE SET EXTRA LARGE (Sterile - Disposable)	MNSXL
NBYT Tension Closure SET SMALL (Sterile - Disposable)	MNSSZD	NPWT CLOSURE SET ABDOMEN (Sterile - Disposable)	MNSA
NBYT Tension Closure SET MEDIUM (Sterile - Disposable)	MNSMZD	NPWT CLOSING SET HAND (Sterile - Disposable)	MNSH
NBYT Tension Closure SET LARGE (Sterile - Disposable)	MNSLZD	NPWT CLOSING SET FOOT (Sterile - Disposable)	MNSF
NBYT MCT CLOSURE SET SMALL (Sterile - Disposable)	MNSSMD	NPWT CLOSURE SET BRIDGE (Sterile - Disposable)	MNSB
NBYT MCT CLOSURE SET MEDIUM (Sterile - Disposable)	MNSMMD	NPWT CLOSURE SET EXTRA SMALL (Sterile - Disposable)	MNSXSS
NBYT MCT CLOSURE SET LARGE (Sterile - Disposable)	MNSLMD	NPWT CLOSURE SET SMALL (Sterile - Disposable)	MNSSS
NBYT UNITED BODY CLOSURE SET EXTRA SMALL (Sterile - Disposable)	MNSXSUD	NPWT CLOSURE SET MEDIUM (Sterile - Disposable)	MNSMS
NBYT UNITED BODY CLOSURE SET SMALL (Sterile - Disposable)	MNSSUD	NPWT CLOSURE SET LARGE (Sterile - Disposable)	MNSLS
NBYT UNITED BODY CLOSURE SET MEDIUM (Sterile - Disposable)	MNSMUD	NPWT CLOSURE SET EXTRA LARGE (Sterile - Disposable)	MNSXLS
NBYT UNITED BODY CLOSURE SET LARGE (Sterile - Disposable)	MNSLUD	NPWT CLOSURE SET ABDOMEN (Sterile - Disposable)	MNSAS
NBYT UNITED BODY CLOSURE SET EXTRA LARGE (Sterile - Disposable)	MNSXLUD	NPWT CLOSING SET HAND (Sterile - Disposable)	MNSHS
NBYT UNITED BODY CLOSURE SET SACRUM (Sterile-Disposable)	MNSDS	NPWT CLOSING SET FOOT (Sterile - Disposable)	MNSFS
NBYT UNITED BODY COVER SET KNEE (Sterile-Disposable)	MNSDK	NPWT CLOSURE SET BRIDGE (Sterile - Disposable)	MNSBS
NBYT UNITED BODY CLOSURE SET CORNER (Sterile-Disposable)	MNSDC	NPWT COLLECTION SET 250 ML (Non-sterile)	MNS250
NBYT UNITED BODY CLOSING SET FOOT (Sterile-Disposable)	MNSDF	NPWT COLLECTION SET 500 ML (Non-sterile)	MNS500
NBYT UNITED BODY CLOSING SET BRIDGE (Sterile-Disposable)	MNSDB	NPWT COLLECTION SET 600 ML (Non-sterile)	MNS600
NPWT CLOSURE SET EXTRA SMALL (Sterile - Disposable)	MNSXS	NPWT COLLECTION SET 1000 ML (Non-sterile)	MNSIK
NPWT CLOSURE SET SMALL (Sterile - Disposable)	MNSS		

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NEGATIVE PRESSURE WOUND THERAPY SYSTEM

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