UrgoK2®

Product Information

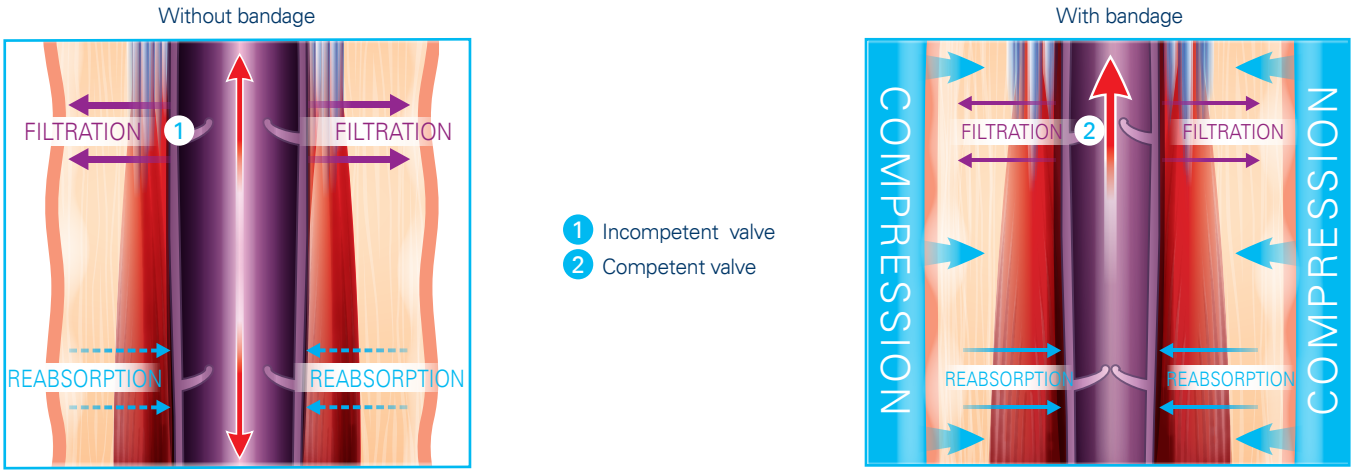
URGO MEDICAL
Healing people®

Introduction
How does Compression work?

1. HAEMODYNAMIC EFFECTS OF COMPRESSION

Graduated sustained compression therapy is widely accepted as an important factor in the management of venous leg ulcers. External application of compression bandaging impacts on the haemodynamic and lymphatic functions:

- Reduction in vein diameter in the superficial and deep venous systems, improving valve function. This reduces venous reflux and improves venous return.
- Improved capillary filtration and reinforced re-absorption of interstitial fluid into the veins and lymphatic system, leading to a reduction of oedema and a better skin condition.



2. BANDAGE PRESSURE: LAPLACE'S LAW

The pressure generated by a bandage immediately following application is explained by Laplace's Law, which defines the relationship between the pressure of a closed elastic membrane and the tension within the membrane.
Laplace's law states that sub-bandage pressure (P) is directly proportional to bandage tension (T) and inversely proportional to the circumference (C) of the limb to which it is applied. It is also important to consider the number of bandage layers applied (N) and the width of the bandage (W).

Laplace's Law:

$$\text{P (mmHg)} = \frac{\text{T x N x constant}}{\text{C x W}}$$

P = sub-bandage pressure (mmHg)
T = bandage tension (Nf)
C = limb circumference (cm)
N = number of bandage layers
W = width of the bandage (cm)
Constant = 4630

The limb circumference and the bandage application technique (tension, number of layers) will directly affect the pressure donated by the system.

To apply the appropriate therapeutic pressure, it is extremely important to use the bandage system recommended for the ankle circumference and to follow carefully the application technique (tension, number of layers controlled with the overlap).

3. BANDAGE PRESSURE IN WORKING CONDITIONS: MUSCULAR MASSAGE, SSI

Many descriptions of compression systems are based on raw technical specifications, such as the extensibility (increase in length in response to a force) as opposed to how the bandage actually works on the limb.
International guidelines recommend assessing the elastic properties of compression systems in vivo using the Static Stiffness Index (SSI).The SSI measures the sub-bandage pressure difference between active standing and resting pressures in mmHg

SSI=WORKING PRESSURE-RESTING PRESSURE

The active working pressure depends on muscle activity. Resting pressure is described by Laplace's law and depends essentially on the bandage tension and application technique.
The difference between working and resting pressures creates a massage effect which stimulates venous return, aids leg volume reduction and in patients with lymphoedema, facilitates lymph absorption and removal.

The overall bandage efficacy depends both on its technical specifications and on the mobility of the patient.

Introduction
Different types of bandages

Compression bandages are categorised in the following way:

Long Stretch Bandages (LSB)

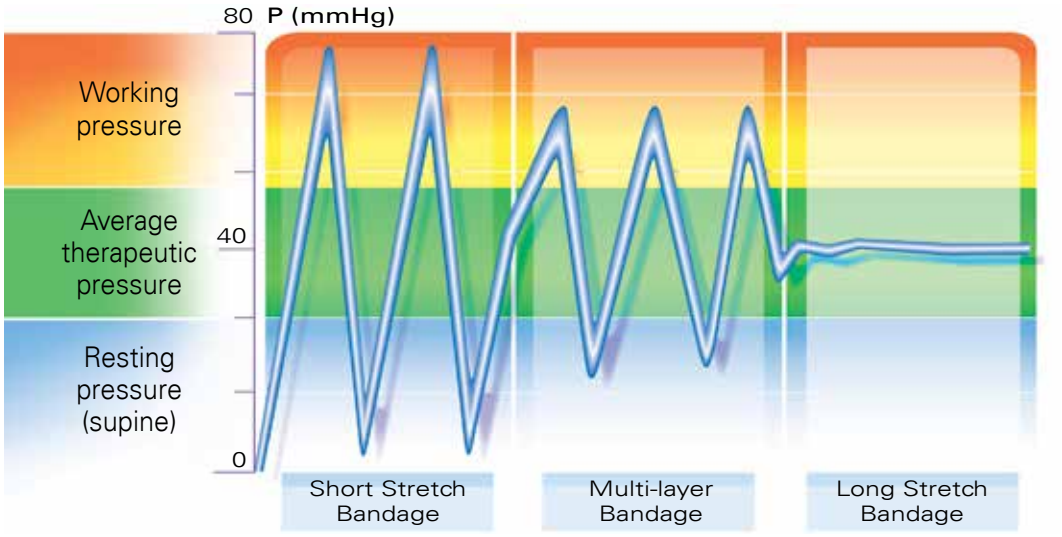
Elastic bandages have a stretch greater than 100%. They maintain the applied pressure even when the patient is at rest, but the difference between working and resting pressures is low and they consequently have almost no massage effect at walk.
This kind of bandage is particularly indicated for immobile patients whose muscle pump is not effective and need the benefit of a high constant pressure to aid venous return.
Appropriate training is very important, as a minimal increase in the bandage extension can result in a significant rise in the external pressure on the leg, with a risk of skin damage.

Short Stretch Bandages (SSB)

None-elastic and Short Stretch Bandages have a stretch of less than 100%.
They provide a low resting pressure and a high working pressure which assures high SSI (>= 10 mmHg) and consequently massage effect at walk.
This massage effect influences positive healing and a reduction in oedema, with a significant effect on deep venous return compared with elastic bandages.
These bandages can be difficult to apply to the limb correctly and the benefits are dependent on the muscle activity and the experience and skill of the practitioners applying them.
Clinical evidences show that the pressure with SSB is rapidly dissipated within a few hours.
This can result in frequent bandage slippage necessitating regular re-application especially in the early stages of compression treatment, until leg oedema has decreased.

Multi-Layer Bandages (MLB)

Diagram of the different types of compression bandages



The original compression multilayer bandage system was developed by a group of clinicians at Charing Cross Hospital, London, using Stemmer's theoretical framework, to show that an external pressure of 40 mmHg was required to heal a leg ulcer on a patient with venous insufficiency.
Using a combination of inelastic and elastic bandages, the MLB were designed to apply a high level of Static Stiffness. During exercise, they perform like a short stretch bandage, providing massage effect at walk.

Multi-Layer bandages donate a medium resting pressure and are developed to give constant sustained compression maintained over time, with massage effect at walk.

UrgoK2® UrgoK2® Lite

- Dynamic 2 layer compression bandage system combining short tretch and long stretch bandages
- Treatment of venous leg ulcers/mixed leg ulcers (Lite version), chronic venous oedema and lymphoedema
- Easy to apply with the PresSure system indicators
- Therapeutic pressure maintained for up to 7 days[1]
- Patient comfort day and night[2]

UrgoK2 is a two layer compression bandage system, benefiting from the PresSure system. This exclusive technology aids the application of the recommended therapeutic pressure (average 40 mm Hg or 20 mm Hg) from the first application[3].

UrgoK2 provides the gold standard levels of pressure of four layer compression bandaging[1] (high pressure around 40 mmHg on average) with only 2 layers.
UrgoK2 Lite provides reduced compression that can be used for patients unable to tolerate full compression, or in a step up approach.
For latex allergic patients and practitioners, the product is available in a latex free version.

INDICATIONS

UrgoK2 (40mmHg) is indicated for the treatment of venous leg ulcer, venous oedema and lymphoedema, which require full compression.
UrgoK2 Lite (20 mmHg) is indicated for the treatment of venous or mixed leg ulcer, venous oedema and lymphoedema, which require a reduced level of compression.

CONTRA-INDICATIONS

- Arterial conditions (arterial or predominantly arterial ulcers; known or suspected arterial disease).
- Ankle Brachial Pressure Index (ABPI) < 0.8.
- Patients suffering from diabetic microangiopathy, ischaemic phlebitis, septic thrombosis.
- Ulceration due to infection.
- Allergy to any of the components – in particular latex for the "non-latex free" version.

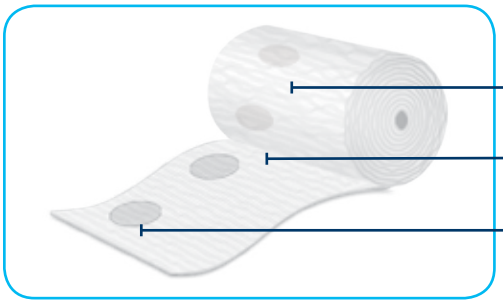
BENEFITS

UrgoK2 provides the following benefits guaranteeing its efficacy:
- High pressure level circa 40 mmHg, at the ankle for UrgoK2 regular and low pressure level circa 20mmHg at the ankle for UrgoK2 Lite
- Massage effect when walking (moderate resting pressure, higher pressure on walking), improving venous return and reducing the oedema.
- Easy to apply with the PresSure system; the correct pressure is achieved from first application[3].
- Low profile design allowing the wearing of normal shoes[2].
- Comfort both during the day and night[2] for an improved patient concordance. The system can stay in place up to 7 days.

COMPOSITION OF THE URGOK2 KIT

Layer 1: KTECH

White short-stretch bandage, providing compression, protection and absorbency



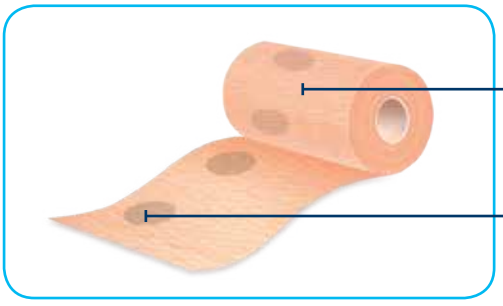
Wadding:
Viscose, polyester
Knitted layer:
Polyamide, elastane
Pressure indicator

CHARACTERISTICS

- Designed to come in contact with the skin; good absorption of exudate.
- Distributes pressure uniformly over the surface of the limb; avoids high pressure points that could cause ulceration on bony prominences.
- Pressure indicator to ensure that the correct compression is applied.

Layer 2: KPRESS (available in Latex Free)

Pink/beige cohesive long-stretch bandage, providing the additional compression necessary to achieve the therapeutic pressure and securing the bandages in place



KPRESS composition:
Acrylic, polyamide, elastane, cohesive material containing natural latex
KPRESS Latex Free composition:
cotton, polyester, polyamide, elastane, synthetic latex free cohesive material
Pressure indicator

CHARACTERISTICS

- Provides the additional pressure to obtain an average 40 mmHg or 20 mmHg at the ankle in association with KTECH and maintains the bandage system in place.
- Cohesive nature to ensure that the compression bandage system stays in place.
- Original composition allowing repositioning without compromising the ability to maintain the correct therapeutic pressure.
- Pressure indicator to ensure that the correct compression is applied.

KITS PRESENTATION

UrgoK2 kit

- Contains 1 KTECH and 1 KPRESS.
- Available in 2 ankle sizes:

18-25cm (KTECH: 6m long; KPRESS: 7.5m long)

25-32cm (KTECH: 7.3m long; KPRESS: 10.5m long)

- Remains in place for up to 7 days.

UrgoK2 Lite kit

- Contains 1 KTECH Lite and 1 KPRESS.
- Available in 2 ankle sizes:

18-25cm (KTECH: 6m long; KPRESS: 7.5m long)

25-32cm (KTECH: 7.3m long; KPRESS: 10.5m long)

- Remains in place for up to 7 days.

PRECAUTIONS

- Check that the ABPI > 0.8 or 0.6 (UrgoK2 Lite) using Doppler ultrasound before prescribing the bandage system.
- In the event of diabetes, heart failure or advanced microvascular disease, use the compression system with close medical monitoring and after appropriate treatment.
- In case of peri-ulcer infectious dermatosis, treat infection before starting a treatment with the compression system.
- In case of an ulcer from rare origin (vasculitis, haemopathy, pyoderma gangrenosum,…) the compression system should only be used following specialist referral.
- The efficacy of UrgoK2 (or UrgoK2 Lite) has been tested and validated for the application of KTECH (or KTECH Lite) and KPRESS together.
- The PresSure System has been designed to aid application of the bandages; it is important to follow the instructions carefully to achieve the recommended therapeutic pressure.
- If any difficulty arises, consult your doctor or clinician immediately.

APPLICATION METHOD

Before applying the bandages

- Examine the shape of the leg and identify any areas at risk of excessive pressure (ie; bony prominences). Protect and reshape leg with wadding if necessary. If a wound is present, apply an appropriate dressing before applying any bandages.
- Measure ankle circumference and ensure the correct kit has been chosen (ankle size 18-25cm or 25-32cm).
- It is preferable to apply the compression system first thing in the morning or after the patient's legs have been elevated for an hour to minimise any orthostatic oedema.
- Depending on the indication, assess need for toe to knee or toe to thigh bandaging and choose the appropriate kit width.

Application method

Once the leg has been bandaged, any excess bandage must be cut off as extra wrapping will increase the pressure.

"Below – knee" application (venous leg ulcer or oedema)

ANKLE CIRCUMFERENCE 18-25CM KIT - 50% OVERLAP

1. Place foot at 90° angle - "toes to nose". Start applying KTECH at the base of the toes by using two turns to anchor the bandage, ensuring the wadding is in contact with the skin and the pressure indicator is at the top edge, towards the patient. Secure the heel by using a figure of eight, ensuring coverage of the heel. Do not apply full stretch on the foot.

2. Spiral up the leg from the malleolus, stretching the bandage so that the pressure indicator forms a circle, achieving the therapeutic pressure. A correct overlap is applied when the pressure indicator, printed on the bandage, is just covered (50% overlap). Finish 2cm below popliteal space and cut off any excess bandage. Secure with tape.

3. Apply KPRESS (or KPRESS Latex Free) over KTECH using the same application technique as KTECH. For patient comfort, allow a small border of KTECH at the toes and knee. Once applied, press down gently on the bandage to ensure full cohesion.

ANKLE CIRCUMFERENCE 25-32CM KIT - 2/3 OVERLAP

Apply in the same way as the 18-25cm kit, with a 2/3 overlap to cover the pressure indicator, which is printed in the middle of the bandage.

For bariatric patients or patients with lymphoedema, use the 25-32cm kit.

FREQUENCY OF CHANGE

UrgoK2 or UrgoK2 Lite should be left in place both day and night until the next dressing change at the discretion of the clinician.

REFERENCES

(1) Lazareth I, et al. Efficacy of two compression systems in the management of VLUs: results of a European RCT. J Wound Care. 2012;21(11):553-561

(2) Benigni JP, et al. Efficacy, safety and acceptability of a new two-layer bandage system for venous leg ulcers

(3) Hanna R, Boholt S, Connolly N. A comparison of interface pressures of three compression bandage systems. Brit J Nursing. 2008;17(20):S16-S24