

# SKIN TRANSPLANTATION

We care



## **Innovative products** in the field of burn surgery

MEEK Micrografting

Cordless dermatomes & blades

Meshers & V-Carriers

Cost-effective devices

Skin stretcher

# Humeca

*our company*

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Humeca was established in 1981 in The Netherlands and is an innovative specialist in skin grafting technology- in particular in the field of burns surgery. Our products are used daily in more than 70 countries worldwide. We work together with specialized local dealers and deal with hospitals and burn centers directly.

With our revolutionary products, we provide medical experts with materials and equipment for optimum treatment of their patients and offer them the highest level of support and service. Humeca is an ISO and CE certified company. The focus and ambition to help every burn victim worldwide is important to be the leading burn specialist in the world.

## **Vision**

Provide medical experts with materials and equipment for the optimum treatment of their patients. And offer these patients the chance on a renewed life where the quality of life has improved in comparison with a treatment with existing technologies.

## **Mission**

Humeca has the focus and ambition to help every burn victim in the world, therefore we develop innovative products and make them available for all doctors worldwide.

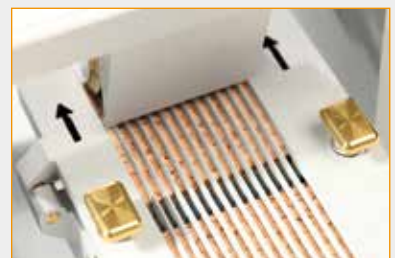
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# MEEK Micrografting

Every doctor will admit, burn wound treatment involves multiple challenges. There is a great risk of infections and poor epithelialization and the lack of autograft donor sites is a limiting factor in achieving wound closure in cases of extensive skin defects.



Current mesh graft techniques cannot meet the requirements which are needed to treat the patient in a best way. Therefore, in cooperation with surgeons of the burn center of the Red Cross Hospital Beverwijk, The Netherlands, Humeca re-designed and modernized the MEEK technique. Originally, the MEEK technique was described by Mr. Cicero Parker Meek from the University of South Carolina Aiken (USCA), USA in 1958. However, this original technique required too much skill and it became eclipsed by the introduction of mesh skin grafts by Tanner et al. in 1964 and was eventually discontinued. In the early 1990's two surgeons from the Red Cross Hospital, Beverwijk, in The Netherlands approached Humeca and asked for help in re-introducing a modified meek technique. After much engineering and re-design the modified meek technique was finalized and released in 1993. Since then, the modernized MEEK technique has been sold to burn centers worldwide and there have been numerous publications written supporting its use.

Our unique MEEK technique is reported to be superior to other grafting methods. Imperfections of the original method were overcome and the prefolded gauzes are now manufactured with expansion ratios 1:3, 1:4, 1:6 and 1:9. The clinical results are excellent, even in problematic zones and in case of inferior wound beds. The method appears to be a simple technique to achieve a regular distribution of postage stamp grafts, correctly orientated to the surface of the wound.

#### Unique MEEK features

- Very small donor sites required;
- Large expansion ratios, up to 1:9, possible;
- Any small skin fragments can be used so no precious donor skin is wasted;
- Fast and uniform epithelialization due to close graft islands;
- Excellent graft take due to correctly orientated graft islands;
- Failure of a few islands does not affect overall graft take;
- Cosmetic results comparable with mesh grafts of a lower expansion;
- Grafts very easy to manipulate;
- Less infections to faster healing process.

MEEK Micrograft is more than a product. It is a unique technique where research shows that burn wounds are closing twice as fast as with the Mesher, there is a significant decrease of infections.

Currently MEEK is mainly used for patients that suffer more than 30% TBSA burns. However MEEK is also very suitable for patients with 5% - 20% TBSA burns. In most cases, 40 - 50% less donor sites have to be used and these same donor sites could be used again within two weeks.





# Cordless dermatomes & blades

Humeca designed two cordless, battery operated dermatomes. A small one, the D42 and a larger one, the D80. The D42, a very maneuverable instrument, is an excellent tool in pediatric and general plastic surgery, especially for primary excision and harvesting grafts from curved surfaces. It also facilitates to harvest the 42x42 mm (1.65x1.65") grafts required for Humeca's MEEK technique, speeding up the procedure. The larger D80 dermatome was developed for more general use.



## Cordless dermatomes features

- Extremely small head of D42 allows precision cutting, especially in problematic zones and pediatric surgery;
- Cordless, battery operated and lightweight design offers optimum maneuverability and mobility;
- Precise thickness of the graft from 0.0 to 1.2 mm (0.000 – 0.048") in 0.1 mm (0.008") increments;
- Graft width of 42 mm (1.65") assures optimum performance in combination with the MEEK technique;
- The use of width-reducing clamps on the dermatome head allow cutting of smaller graft widths;
- Battery and motor of the instrument are not sterilized, thus guaranteeing optimum durability;
- Thickness adjustment can be fixed to prevent accidental change of graft thickness during cutting.
- Safe and quick blade replacement;
- Powerful Li-Ion batteries with no memory effect allow long time cutting without intermediate charging.

The D42 is the result of an attempt to design a small and lightweight battery operated dermatome. The larger D80 dermatome was developed for more general use. We are always looking for innovation and strive for sustainable products.

## Blades: great value combined with good compatibility

Humeca supplies a range of high quality blades for different types of dermatomes. For the D42 and D80 cordless dermatomes and for the hand held Sober dermatome, Humeca supplies symmetrical and double facet grinded blades for minimum resistance and uniform graft thickness. The blade moves at a maximum speed of over 7000 strokes per minute (unloaded). This assures smooth cutting operation and also enables very thin grafting.

Humeca also supplies blades that are compatible with:

- Aesculap® / B.Braun® cordless dermatomes;
- Padgett® dermatomes type B,C and S.



# Mesher & V-Carriers

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The Humecca mesher is provided with a unique spring mechanism that prevents the blades from excessive pressure on the carrier during cutting, thus increasing the life time of the blades. The mesher can be adjusted in two positions: one to fit V10- or Zimmer® carriers and one to fit V15- or Aesculap® / B.Braun® carriers. During cutting, the carrier is guided both at the left and the right side to assure straight movement and exact connection of the grooves of a second carrier if applied.





Unlike most conventional meshers, where the carrier is moved through the device by means of intermittently pulling a ratchet, the Humeca® mesher is driven by the continuous rotation of a handle. The rotation makes the meshing procedure less time consuming and the design is far more ergonomic. Opening the bridge of the mesher allows easy access to the cutting axis for cleaning and inspection.

### Mesher features

- Robust and durable construction;
- Compatible with Humeca® V-carriers of all types (V10 and V15);
- Compatible with Zimmer® and Aesculap® / B. Braun® carriers;
- Spring mechanism prevents blades damage;
- Continuous rotational drive; no intermittent pulling of a ratchet;
- Measures l x w x h: 220x212x183 mm (8.7x8.3x7.2");
- Weight: 4.4 kg (9.7 lb);
- Cutting axis can easily be replaced;
- Compact st. steel sterilization case available, l x w x h: 277x232x197 mm (10.9x9.1x7.8").

### V-Carriers: for effective expansion and perfect perforation

Humeca introduces a new range of grooved skin graft carriers, called 'V-carriers'. The symmetric V-shaped groove pattern of these carriers prevents unwanted sideward movement during cutting. The standard length of these carriers is 28 cm and thus longer than the length of existing carriers and care has been taken to ensure that the groove pattern of the carriers connect to each other. This enables cutting of extra-long graft strips.

The V-carriers are available in versions that are compatible with Zimmer® meshers and versions that are compatible with Aesculap® / B. Braun® meshers. Of course both versions are suitable for use in the Humeca mesher. Available expansion ratios: 1:1, 1:1.5, 1:2 and 1:3. The 1:1 carrier only perforates the graft without the intention of expanding it. This is to achieve sufficient drainage in full sheet grafts with hardly any graft pattern in the final result. This development work was supported by the Dutch Burns Research Institute and the Euro Skin Bank in Beverwijk, The Netherlands. The 1:1 perforation V-carrier was developed and clinically tested in close cooperation with the University Hospital Gent, Belgium.



# Cost-Effective Devices

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Specifically designed for effective surgery in developing countries.

Based on experiences with surgery in third world countries and in close cooperation with experts in the field of tropical medicine, Humeca introduces a line of portable, economical and simple skin grafting devices. This product line offers the surgeon a low-cost alternative to the more elaborate mechanical equipment used in burn treatment, especially when only small grafts are needed. Due to an attractively priced and durable, yet efficient construction, these devices are very suitable for the use in outdoor clinics and third world countries.



### SOBER Dermatome and Blades

In co-operation with the Dutch surgeon Dr. Willem Nugteren, Humeca developed a dermatome for free-handed harvesting of a 30 mm (1¼ in.) wide split skin graft with a pre-determined thickness of about 0.25 mm (0.001 in.). This one-of-a-kind product is called the Sober dermatome. The shape of the Sober dermatome was derived from a safety razor. Humeca supplies special low-cost blades that are to be used with this dermatome.

### SOBER Dermatome features

- Robust construction;
- Wide availability of blades;
- No lateral movements are required;
- Accessible to low-resource health systems;
- Sustainable;
- Simple yet effective in use;
- Minimal maintenance.

### SOBER Mesher

With the SOBER Mesher, Humeca introduces a highly effective product that is easily operated, with a ratchet drive, and sustainable. The SOBER mesher does not require the use of any additional disposables (carriers). Instead of cutting with blades, the SOBER mesher operates by the proven principle of snipping (like a pair of scissors). As a consequence, there are no sharp blades that might get blunt and need replacement over time. The maximum graft width that can be cut with the SOBER mesher is 45 mm, which enables handling of grafts harvested with the SOBER dermatome, the Humeca D42 dermatome or any other dermatome adjusted to a maximum graft width of 45 mm.



### SOBER Mesher features

- Expansion ratio 1:2.5;
- No additional disposables (carriers) required;
- No sharp blades axle;
- Small size and light-weight construction;
- Graft length is unlimited;
- Simple in use and low-maintenance;
- Accessible to low-resource health systems.

### ECON Mesher

Humeca supplies two types of ECON Meshers for affordable skin grafting. These easy-to-use and low-maintenance meshers have an expansion that is fixed to a ratio of 1:2.5 or 1:4. ECON meshers are equipped with a ratchet drive, and do not require the use of any additional disposables (carriers). Instead of cutting with blades, the ECON mesher operates by the proven principle of snipping (like a pair of scissors). As a consequence, there are no sharp blades that might get blunt and need replacement over time. Graft length is unlimited, while graft width is limited to a maximum of 75 mm.

### ECON Mesher features

- Expansion ratio 1:2.5 or 1:4;
- No additional disposables (carriers) required;
- No sharp blades axle;
- Graft length is unlimited;
- Simple in use and low-maintenance;
- Accessible to low-resource health systems.

# Skin Stretcher

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Despite many developments and improvements in burn wound treatment, burn scars frequently result in a poor functional and cosmetic outcome for the patients. Although many reconstructive techniques have been described to improve burn scars, scar excision followed by direct wound closure can offer a favourable outcome, as it results in a smaller scar. Closing a large skin defect after burn scar excision can be difficult and therefore large burn scar excision is often performed in a multiple-step procedure (serial excision).



The Humeca Skin Stretcher was developed to excise larger burn scars in a one-step procedure. This instrument was developed in close cooperation with surgeons from the Red Cross Hospital, Beverwijk, The Netherlands.

### Skin Stretcher features

- Effective wound closure;
- One step procedure;
- Smaller scars;
- Developed in close cooperation with the Red Cross Hospital Beverwijk.



# Our models

on the cover

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Margreth and Jayan, two burn victims. Please read their stories...





### Margreth

November 2001 is a month we will never forget. Our eldest daughter (just one year old at the time) was burned by a cup of tea. Something like that happens in a split second and what goes through your mind is impossible to describe. You do what you think is best.

We called a doctor, who didn't want to come, so we had to go by ourselves. In the end the manager of the local supermarket drove us to the doctor, who directly referred us to the hospital. Unfortunately the hospital couldn't do anything for us and we are brought by ambulance to the burn center BWC in Rotterdam. A medical team was waiting for us and to be honest, despite all emotions, sadness and pain, they took care of us in a fantastic way.

Our daughter stayed in BWC for three weeks. She underwent surgery in order to accelerate the closing of the burns, where the doctors removed skin from her thigh to transplant it to the wound. After three weeks we could finally take her back home.

We were glad to be home again, but we didn't expect that there would be more challenges ahead. She didn't want a bath (we think the bath reminded her to the bath in BWC), poor sleeping because of itching and to resume the activities of daily life was harder than expected. Fortunately we were able to ask all of our questions to the aftercare of the BWC...

### Jayan

December 8, 2014. The day that everything changed

With the trauma helicopter, I was rushed to the Burns Center in Beverwijk. There I was admitted to the ICU, the so called Box 1. This was followed by a very worrying time for my family and friends but also for the surgeons and the nurses. I turned out to be burned for 68,5% of which 53% was third degree. Many surgeries followed and my condition remained critical. Mid-February I woke up and then it started for me. The painful dressing changes, repairing and re-learning everything. I was allowed to start eating again and received therapy from a physiotherapist, an occupational therapist and a speech therapist. Occasionally they used a hoist to put me on a chair. By the end of March I was discharged from the ICU into a regular room. The therapy continued because after such severe burns and no physical movement my body was capable of almost nothing. After a stay of 4 months and 8 days in Beverwijk, I left on April 16th 2015, to rehabilitation center "de Tolbrug" in-Hertogenbosch. That is when the rehabilitation really began. Daily physiotherapy, occupational therapy, speech therapy, hand therapy and more. I had to learn walking and moving again, but also daily activities like washing, dressing, talking, cooking and other household chores...

Read the whole story about Margreth and Jayan on our website [www.humeca.com](http://www.humeca.com)





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