





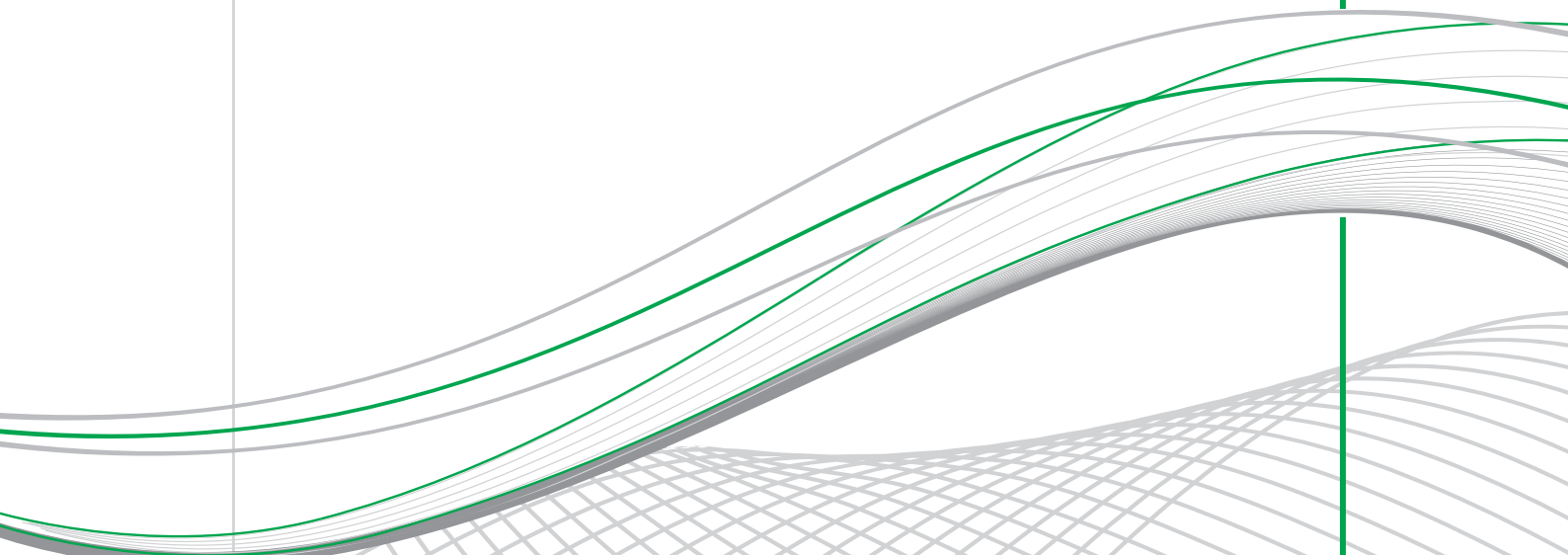


Expert Technologies in **PVDF**

 made  
in  
Germany

# DynaMesh<sup>®</sup>-LICHTENSTEIN

## THE Lichtenstein mesh

-  Excellent Material: 100% PVDF
  -  Anatomic Correct Design
  -  Atraumatic Selvedges
  -  Optimal Handling
- 

# Enhanced Handling

The basic principle of the Lichtenstein hernia repair is a tension free mesh augmentation of the inguinal region after conventional preparation and reduction of the hernia.

Several studies show a high rate of patients with chronic pain after Lichtenstein hernia repair.

Dr. Helmar Gai is a well-known German hernia specialist with an experience of more than 6000 Lichtenstein repairs.

He worked at the *private clinic Fleetinsel in Hamburg* and at the *hernia centre Dr. Muschaweck Munich*.

He has some recommendations to minimize this rate.

## Details of Dr. med. Helmar Gai regarding the Lichtenstein technique

- The operation should be done under local anaesthesia using a combination of nerve blockade and infiltration. Thus, atypically running nerves can easily be identified and unnecessary traumatisations can be avoided.
- A direct hernia usually does not need any special treatment before mesh implantation. Only large direct hernias should be treated by a running suture without tension to facilitate the mesh fixation after reduction.
- According to the original description of Lichtenstein for all indirect hernias only a reposition of the hernia sac should be done. After own experience it seems to be safer to invert the hernia sac after performing a circular purse-string suture at the base.
- There is a minimum size for a mesh for the Lichtenstein repair. The length between pubic tubercle and internal ring usually is 7 cm. The length of the flaps which are surrounding the spermatic cord should be about 5 cm. The mesh must always be adapted to the patient and never the patient to the mesh. Therefore, the **DynaMesh®-LICHTENSTEIN** has dimensions complying with these requirements. For an average sized patient the mesh should be cut at the caudal rounded area for about 1-2 cm. The main interest is focussed to the new internal ring. On one hand there is a risk of compressing the cord structures when it is too narrow and on the other hand the risk that the new internal ring is too wide. The absolutely new warp-knitted structure of the **DynaMesh®-LICHTENSTEIN** allows an ideal adaptation because there is no risk that the mesh can rupture along the incision even if the slit has to be prolonged.
- PVDF is the recommended mesh material. After many years of application in surgical disciplines this monofilament has proven its worth. It offers an extreme high biocompatibility and biostability.
- For the medial fixation of the mesh to the aponeurosis of the internal oblique abdominal muscle so called "air knots" are recommended. This should guarantee that invisible subfascial nerves are not part of a tight knot.

It is standard that the patient is walking out of operating room himself.

## References:

**Gai, H.** „Ultrasound of inguinal hernias: morphological classification for a potentially conservative treatment in asymptomatic patients.“ (Ultraschall Med. 2010, Epub 2010, German)

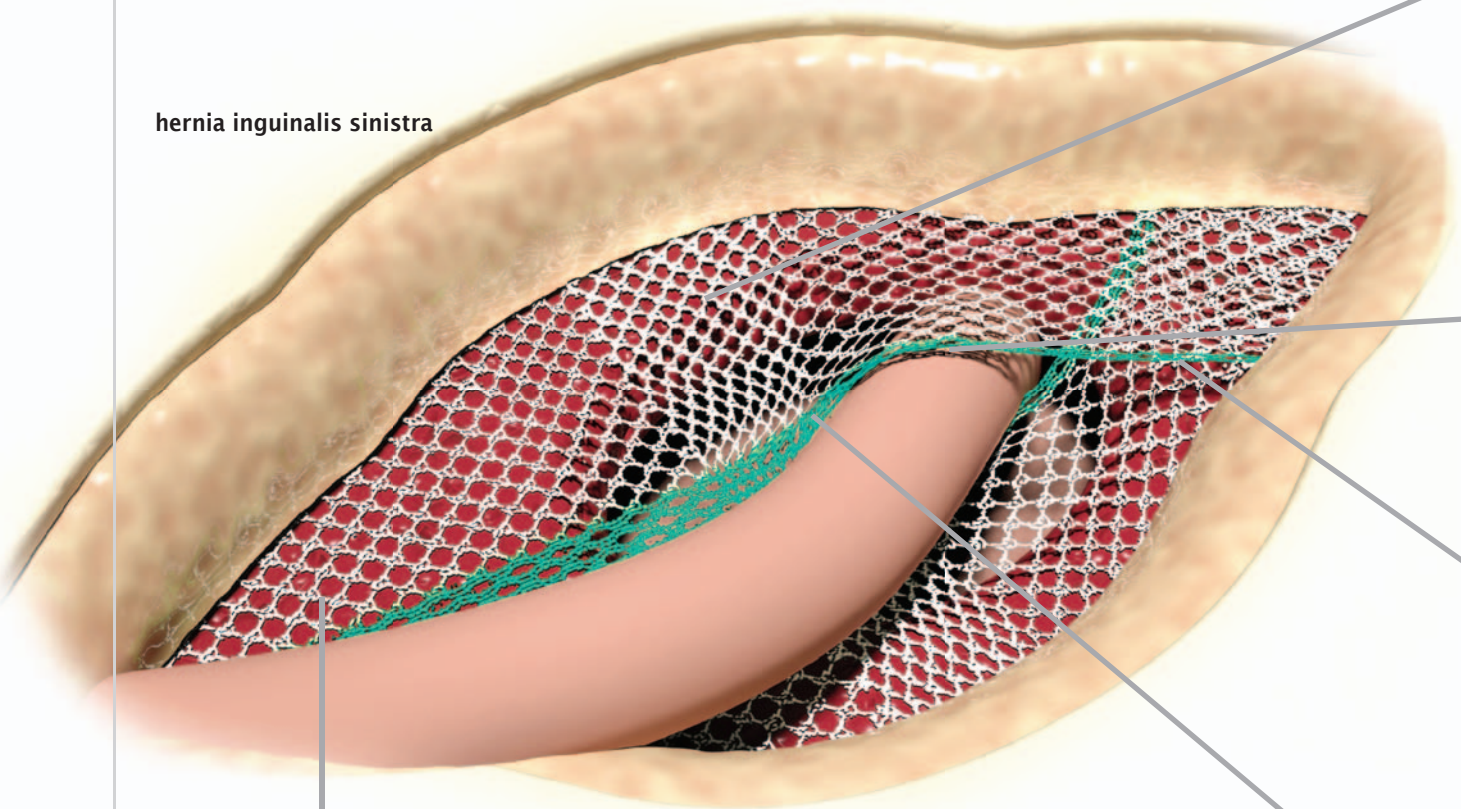
**Gai, H.** „The Lichtenstein technique - minimally invasive surgical procedure. Experiences and results of 251 hernia repairs.“ (Langenbecks Arch Chir Suppl Kongressbd. 1996, German)

**Gai, H.** „Lichtenstein-Methode“ (Kapitel 2.7.8 , Hernienchirurgie, Verlag: Urban & Fischer, 2009, German)

Using DynaMesh®-LICHTENSTEIN, advantages of this method are:

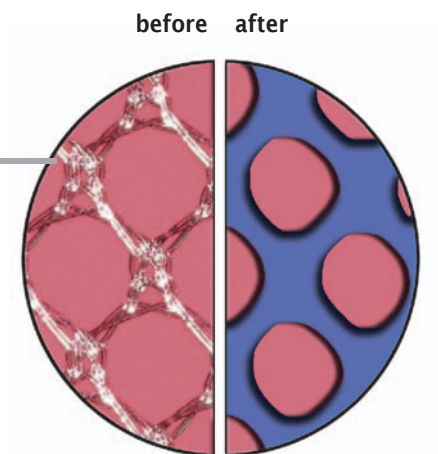
- safe and time-saving handling
- less postoperative pain
- fast convalescence and quick return to normal physical activities
- long term safety for patients

hernia inguinalis sinistra



#### Optimal Pore Size

The special warp-knitted structure offers a very high textile porosity **before** and an excellent effective porosity (65.5%) **after** incorporation. This avoids bridging which leads to high patient comfort.

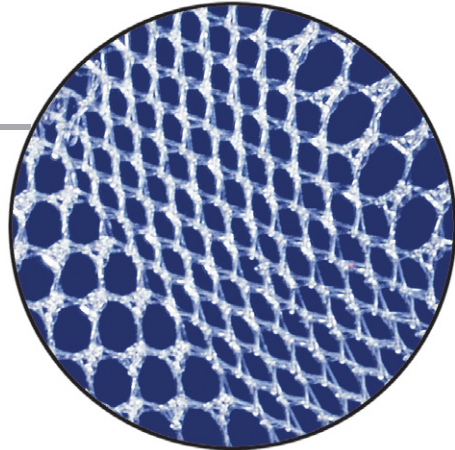




## Structure

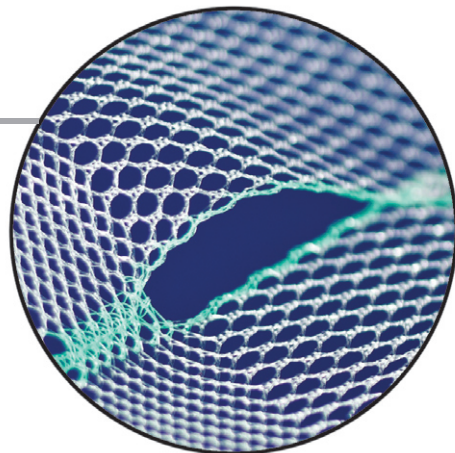
### Elastic Safety Zone

The unique structure provides an elasticity which offers a considerable facilitation for a modulation of the mesh without creases.



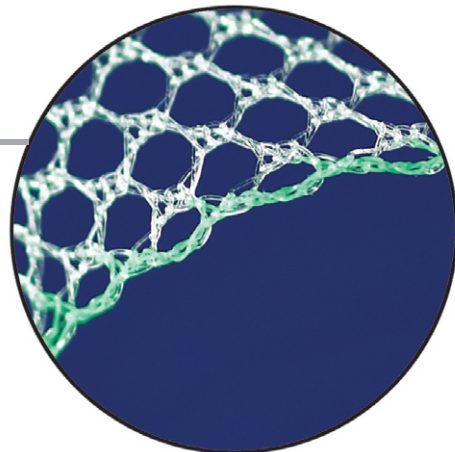
### Perfectly Adaptable Tunnel Modulation

The new constructed slit solution affords perfect tunnel modulation with optimal allocation of compression on the spermatic cord.



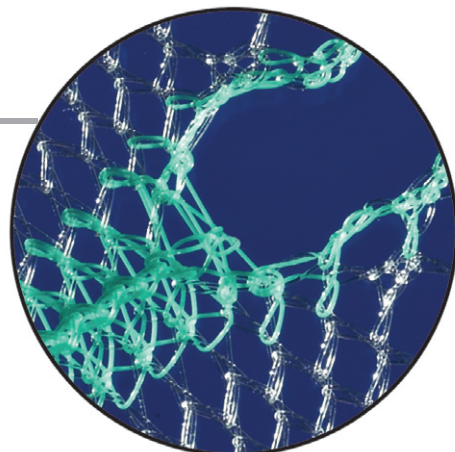
### Warp-knitted Selvedges

The atraumatic and soft selvedges have a positive impact on postoperative pain and reduce arrosion at the spermatic cord significantly.



### Special Structure

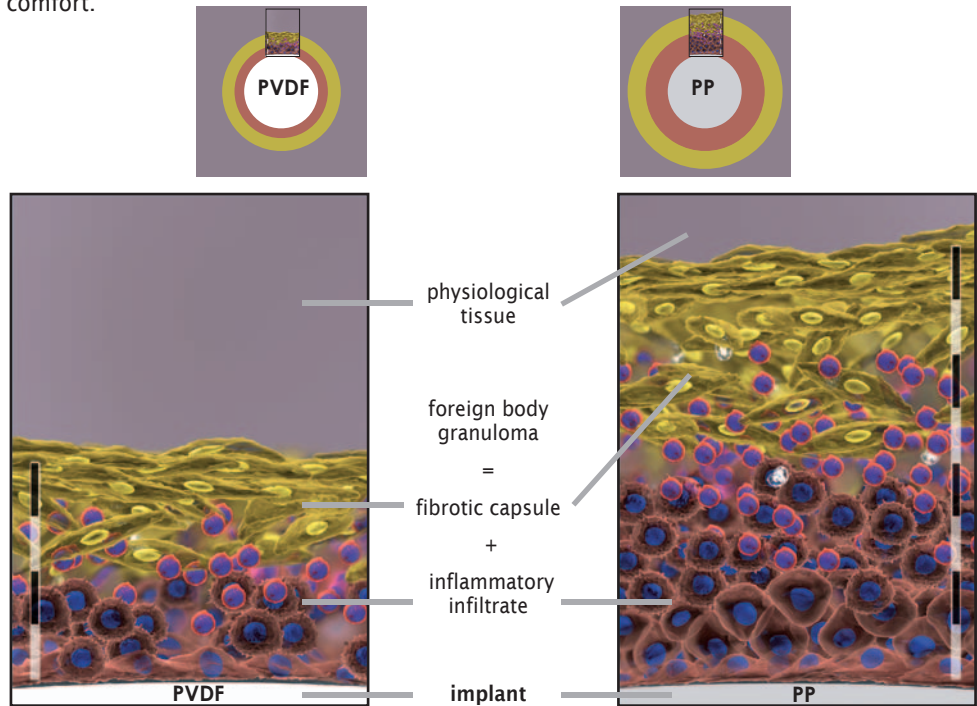
The innovative DynaMesh® warp technology leads to highest tear propagation resistance. A manual adaption by the surgeon is not necessary. Mesh ruptures are reliably avoided.



# Excellent Material: PVDF

## Less Foreign Body Reaction

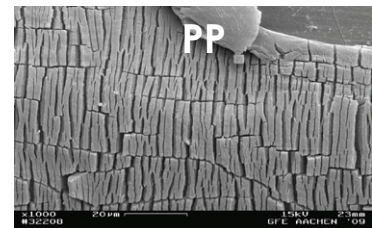
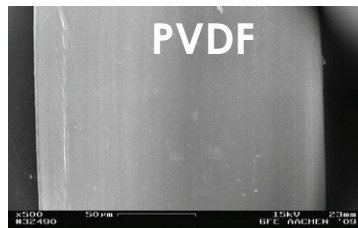
The minimized foreign body reaction reliably prevents from bridging leading to highest patient comfort.



Klosterhalfen, B., Institute of Pathology, Hospital Düren "Foreign Body Reaction" (2010)

## Superior Ageing Resistance

After many years of application in various surgical disciplines the high performance polymer PVDF has proven its worth compared to PP: Enduring high preservation of surface integrity and fibre stability leading to long-term patient safety.



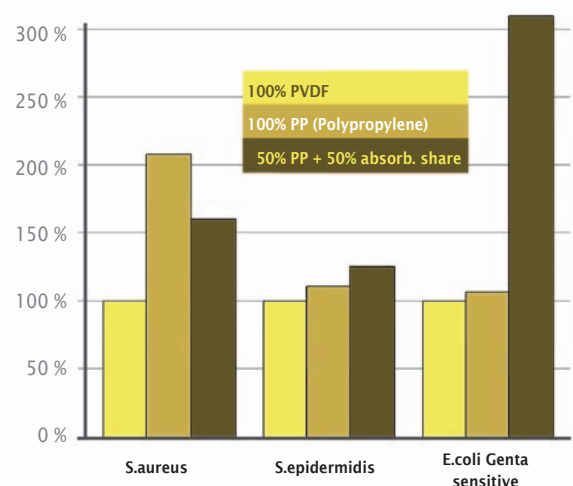
Klink, C.D. et al. „Comparison of long-term biocompatibility of PVDF and PP meshes.” (Journal of Investigative Surgery, 2011)

Junge, K. et al. „Damage to the spermatic cord by the Lichtenstein and TAPP procedures in a pig model.” (Springer Science + Business Media, 2010)

Laroche, G. et al. „Polyvinylidene Fluoride Monofilament Sutures: Can they be used safely for long-term anastomoses in the thoracic aorta?” (International Society of Artificial Organs, 1995)

## Reduced Bacterial Adherence

During a recent investigational study of the University Hospital Aachen cultures of microbial strains of relevant germs have been given onto different mesh material. The fluorine essence measure afterwards showed a marginal quantity of germs adhering on meshes made from pure PVDF. Especially for all open surgeries techniques this is of major importance as the risk of infection considerably decreases at reduced bacterial adherence.



Klosterhalfen, B., Institute of Pathology, Hospital Düren, Junge, K. and Klinge, U., University Hospital Aachen "Comparison of bacterial adherences" (2010)

# Technical Data

## DynaMesh®-LICHTENSTEIN

**Material:** 100 % PVDF (Polyvinylidene Fluoride) monofilament

**Effective porosity:** 65.5 % <sup>1)</sup>

**Reactive surface:** 1.38 m<sup>2</sup>/m<sup>2</sup>

**Suture pull out strength:** 31 N

**Tear propagation resistance:** 28 N

**Classification:** 1a <sup>2)</sup>

**Fixation:** All common fixation methods<sup>3), 4)</sup>

- <sup>1)</sup> Method according to Mühl, T. et al. „New objective measurement to characterize the porosity of textile implants.“ (Journal of Biomedical Materials Research, Part B: Applied Biomaterials, 2007)
- <sup>2)</sup> Modified Amide Classification according to Klinge, U. 4/2010
- <sup>3)</sup> Lammers, B.J. et al. „Less Pain Intensity After Lichtenstein-Repair by Using BioGlue for Mesh Fixation.“ (Surg Technol Int., 2009)
- <sup>4)</sup> Negro, P. et al. „Open tension-free Lichtenstein repair of inguinal hernia: use of fibrin glue versus sutures for mesh fixation.“ (Hernia, 2010)

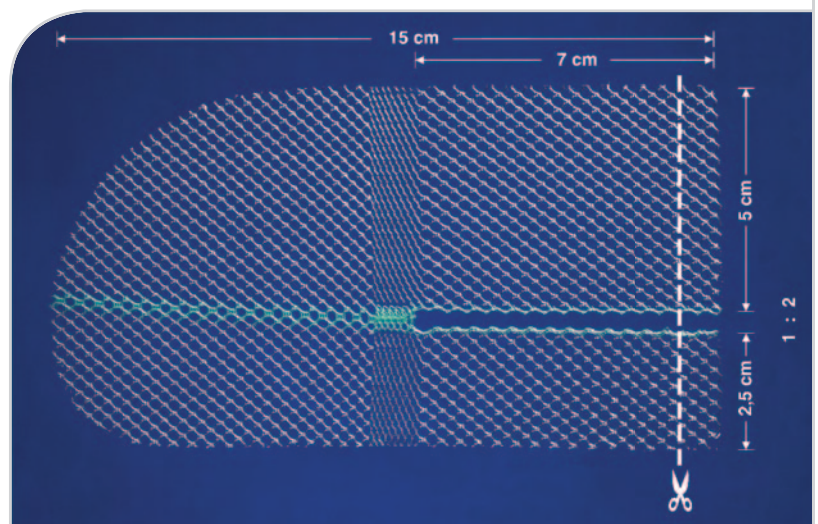
# Delivery Program

## DynaMesh®-LICHTENSTEIN

|                      |                |           |
|----------------------|----------------|-----------|
| Size: 7.5 cm x 15 cm | REF PV110715F1 | BX = 1 EA |
|----------------------|----------------|-----------|

|                      |                |           |
|----------------------|----------------|-----------|
| Size: 7.5 cm x 15 cm | REF PV110715F3 | BX = 3 EA |
|----------------------|----------------|-----------|

Applicable for left and right inguinal hernia.



[www.dyna-mesh.com](http://www.dyna-mesh.com)

hergestellt durch / manufactured by /  
fabriqué par / fabricado por /

FEG Textiltechnik  
Forschungs- und Entwicklungsgesellschaft mbH  
D-52070 Aachen, Germany  
Tel.: +49-(0)241-18 92 37 40  
Fax: +49-(0)241-18 92 37 459  
E-mail: [dyna-mesh@feg-textiltechnik.de](mailto:dyna-mesh@feg-textiltechnik.de)