DynaMesh®-HIATUS
DynaMesh®-IPST
DynaMesh®-CICAT
DynaMesh®-IPOM
DynaMesh®-ENDOLAP 3D
DynaMesh®-ENDOLAP
DynaMesh®-LICHTENSTEIN

Tailored Implants made of PVDF

Hernias

by FEG Textiltechnik mbH
Some of our products may not be available in your country. Please contact your local distributor for more information.

Legal information

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Tailored Implants made of PVDF

It all begins with a thread

In the beginning, there was not just any thread but a filament made of PVDF*: tear-resistant, biocompatible and smooth. PVDF “naturally” supplies many of the properties characteristic of an ideal implant. However, the thread first has to be warp-knitted into a textile structure. Not just anyhow but tailor-made for the relevant indication. The right stitch makes the difference. Only through the right stitch can we achieve the “inner values” required, such as stability, elasticity and porosity. So the end result is not a “one fits all” implant but a specifically created DynaMesh® high-tech product. A product which enables doctors to perform their duties as effectively as possible – and which gives patients many symptom-free and safe years.

*The polymer PVDF
The starting point for all DynaMesh®products is a PVDF monofilament - a synthetic yarn made from polyvinylidene fluoride. Its diameter is between 0.085 and 0.165 mm. PVDF is an extremely ageing-resistant, thermoplastic fluoroplastic with suitably adapted elasticity. It is tear-resistant, biocompatible and produced with extreme precision. PVDF has been known to be a superior suture material since 1995; it has been used successfully in textile implants since 2003 [1,5].
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Our promise
You can rely on it

What matters to you as a doctor

Textile implants that deliver optimal and efficient patient care. Efficient and uncomplicated handling during surgery. Surgical results that give doctor and patient lasting satisfaction.

What matters to your patients

Textile implants which are virtually undetectable, which provide freedom of movement without discomfort or restrictions and whose long-term functioning can be monitored postoperatively, thanks to visible technology, without further surgical procedures. Long-term solutions which mean they can live free of pain and discomfort.

What matters to us as the manufacturer

Textile implants made of a raw material which we understand completely: PVDF. A production that we have under control from start to finish. Our products are not only tailor-made for the relevant indications or surgical techniques but also been developed alongside surgeons for new and improved surgical procedures.
Everything under one label

We, FEG Textiltechnik mbH, have our company head office in the city of Aachen (North Rhine-Westphalia, Germany). We are the leading developer of textile implants, which we manufacture exclusively in Germany. They are distributed worldwide under the brand name DynaMesh®.

Everything from a single source

Whether it’s a matter of product development, manufacture, quality control, dispatch or advice, we undertake all production steps ourselves from spinning the filament (yarn) to final packaging. In this way, we achieve optimal results at every stage in the process.

Everything under control

When manufacturing our products we place the utmost importance on compliance with Medical Device Directive 93/42/EEC and are certified according to DIN EN ISO 13485. Production takes place in clean rooms certified according to ISO 14644-1 and graded as class 7 and class C under the EC GMP Directive.
Our company
“Made in Germany“ high-tech products

Everything for the doctor

Our range includes customised textile implants for modern hernia and stoma surgery. At the same time, we offer special mesh implants for hernia repair and prophylaxis. Together with experienced surgeons we organise seminars and workshops.

The latest information: You can find information about workshops at: http://dyna-mesh.com

Everything with distinction

In 2007, our visible technology won an award (“Innovation competition to promote medical technology” by the Federal Ministry of Education and Research).

DynaMesh®
by FEG Textiltechnik mbH

Everything for the future

Our high-performance Research and Development Department is working on the next generation of products today. In association with the world’s leading research facilities and hospitals, our engineers work with well-known medical specialists to shape the future.
Restoring functionality

Implants are designed to replace natural bodily functions that have been lost and in doing so to restore balance to destroyed physiology.

Understanding the problems

To develop an optimal implant we need to ask ourselves a lot of questions. For example: In which part of the body will it be implanted? What functions does it have to fulfil? What static and dynamic stresses act on the implant? Relevant dynamometric measurements, discussions with surgeons and the expertise of our engineers provide the answers.

Defining functionality

Together with medical experts our engineers can define the shape, functionality and profile of properties for the implant. They now know exactly what stabilities, elasticities and porosities are required, how handling can be improved for the surgeon and much more.
Finding individual solutions - avoiding the wrong path

There is no such thing as a single textile structure for all indications – no “allrounder” for all cases (no “one fits all”). As every indication makes different demands of a textile implant, every indication needs its individual solution (a tailored approach).

Adapting properties

DynaMesh® products are not woven or conventionally knitted but warp-knitted*. This technology, unlike any other, makes it possible to make specific variations in the shape and structure of a textile implant, which means that we can construct features with different characteristics in different places within the structure. More accurate adaptation of implants to the relevant indication is impossible.

*Warp-knitted fabric. Warp-knitted fabrics are a type of knitted fabric. A warp knitting machine is used for industrial production of this kind of fabric (by stitch formation from thread systems).
The filament (“yarn”) we spin from the high-tech polymer PVDF is the first guarantee of the high quality of DynaMesh® products: a filament with many positive “natural” properties. The textile structures warp-knitted from this are the second guarantee.

Very high body compatibility

PVDF filaments have excellent biocompatibility and reduce adverse foreign body reactions, such as scar contractions or pain. In addition, they are finer and smoother than conventional filaments. So PVDF is associated with substantially lower granuloma formation (scar tissue) compared with conventional polymers [2,3,4].

Reduced bacterial adherence

Scientific studies* from Aachen University (RWTH) Hospital demonstrate that lower quantities of bacteria adhere to textile implants made from pure PVDF (reduced bacterial adherence). This is a significant finding for all open techniques because the risk of infection drops substantially with lower bacterial adherence.

A comparison of 100% PVDF (polyvinylidene fluoride) with 100% PP (polypropylene) and 50% PP + 50% absorbable component. In this study, cultures of reference strains of relevant bacteria were applied to different meshes. A subsequent fluorescence measurement clearly showed that the smallest quantity of bacteria had colonised meshes made from pure PVDF.
High ageing resistance

It is not just experience that shows that PVDF provides lasting success in many surgical disciplines. A long-term study over seven years has demonstrated that the condition of the PVDF surface remains unchanged. Thread and warp-knitted fabric remain stable and nothing becomes brittle [2, 52].

A long-term trial (7 years):
- PVDF loses only \( \approx 10\% \) tensile strength
- PP loses \( \approx 50\% \) tensile strength and stiffens

FIG. 5. The residual tensile strength of PVDF and polypropylene sutures during the 7 years of exposure to hydrolytic conditions is illustrated.

With the kind permission of:
Laroche G, Marcis Y, Schwarz E, Guiqoin R, King M W, Paris E, Douville Y:
If you want to minimise adverse foreign body reactions and scarring associated with textile implants, besides using biocompatible material you have to provide the least possible contact area. The following formula applies:

\[ \text{thread surface} = \text{bioreactive surface area of the implant.} \]

Our implants have a comparatively minimal reactive surface area, which means that they cause the least possible foreign body reaction and scar tissue formation.

### Comparison

<table>
<thead>
<tr>
<th></th>
<th>conventional small-pore mesh implant</th>
<th>closed membrane</th>
<th>DynaMesh*-LICHTENSTEIN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Implant/Size</td>
<td>15 x 15 cm</td>
<td>15 x 15 cm</td>
<td>15 x 15 cm</td>
</tr>
<tr>
<td>plant surface area</td>
<td>225 cm²</td>
<td>225 cm²</td>
<td>225 cm²</td>
</tr>
<tr>
<td>Reactive surface area of the implant (thread surface)</td>
<td>637 cm²</td>
<td>450 cm²</td>
<td>288 cm²</td>
</tr>
<tr>
<td>reactive surface area/implant surface area (factor)</td>
<td>2.83 cm²/cm²</td>
<td>2.00 cm²/cm²</td>
<td>1.28 cm²/cm²</td>
</tr>
<tr>
<td>Change in the reactive surface area compared to closed membrane</td>
<td>+ 42 %</td>
<td>0%</td>
<td>- 36 %</td>
</tr>
</tbody>
</table>

### Atraumatic selvedges

DynaMesh® products are not simply cut from a flat piece of mesh. Using our special warp knitting machines we are able to produce smooth and therefore atraumatic selvedges (no “sawtooth” edges).

These “soft” selvedges make it easy for the surgeon to place and adjust the implant – without irritating or even damaging the surrounding tissue. And the patient receives an implant with selvedges which will not “pinch” or cause other injury later on.
Optimal dynamometry

Textile implants must reinforce tissue, support muscles and protect organs. They have to cushion different forces without limiting mobility – including the extreme stresses associated with coughing, sneezing and laughing. What is needed therefore is an optimal interaction between predefined stability and elasticity. We achieve the optimal balance between these two properties.

The behaviour of abdominal walls with different mesh implants under stress

High tear propagation resistance

Conventional textile implants have a weak point: once torn or cut a zipper effect frequently occurs – the mesh continues to tear (mesh rupture). This does not happen with DynaMesh® products. The multiple meshing technique used in our warp-knitted structures does not allow this unwanted effect to occur in the first place. Tear propagation resistance is one of the basic properties common to all our implants.
Effective porosity

During incorporation the filaments are enclosed by an internal and external granuloma. When filament distance is too small there is a risk that the whole of the intervening space will be filled with scar tissue (closed pores). The scar plates that develop in this way cause patients great discomfort. Sufficiently large pores can prevent this.

Textile porosity refers to the permeable component of a mesh before the body has reacted to the implant.
How is this prevented? PP implants must have a pore diameter of at least 1 mm in all directions - under loading as well (!) (because of the lower granuloma thickness, just 0.6 mm is sufficient in the case of PVDF) - for the pores to remain open. Only in this way can local autochthonous tissue form through a pore [6,8].

DynaMesh® warp-knitted fabrics provide this prerequisite because of their optimal pore geometry and the high effective porosity* (up to 69%) achieved through this geometry.

*Effective porosity refers to the permeable component of a mesh after the body has reacted to the implant.

Rule of thumb: A ‘pore’ less than 1 mm in diameter is closed by the body with scar tissue.

= 0% effective porosity
The problem with monitoring

In many indications, the correct positioning of the implant must be checked after a certain time. But a “look inside” involves risks. Conventional mesh implants are invisible in diagnostic radiology. Patients sometimes have to undergo a second-look operation.

A simple alternative

The unique DynaMesh® visible provides cutting edge technology, which is extremely safe and effective. To put it simply: we mix the PVDF filament with ferromagnetic micropigments using an inhouse procedure. This guarantees optimal incorporation of the pigments. Long-term tests demonstrate that the micropigments are integrated into the PVDF polymer – you could say hermetically sealed.

A clear internal view

DynaMesh® visible implants can be made visible using magnetic resonance imaging (MRI) [7] both in standard sequences and in high-resolution, three-dimensional images or even films. As such, radiologists can reliably and accurately determine the position and condition of the implant. Additionally, if required, they can observe how the implant behaves in motion.

Effective healing

Because it is so easy and safe to take a „look inside“, DynaMesh® visible opens up new perspectives. Risk-free monitoring of how healing is progressing, optimal monitoring in clinical studies or more rapid development of pioneering implants – together with world-renowned clinical partners.

Moreover, DynaMesh® visible is the world’s first technology to visualise textile implants. It was given an award by the German Federal Ministry of Education and Research (BMBF 01EZ 0849).
During MRI scans, in imaging terms the part of the body being analysed is scanned step by step and deconstructed into many “wafer-thin optical slices”. At the end, these “slices” are reconstructed to form 3-dimensional images or motion sequences (remodelling).

- The position of the DynaMesh® visible implant can be visualised and monitored in detail. The 3D internal view supplies useful information.
# Implants for inguinal hernias

<table>
<thead>
<tr>
<th>Implant Type</th>
<th>Technique</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>DynaMesh®-LICHTENSTEIN</td>
<td>Lichtenstein technique</td>
<td>20</td>
</tr>
<tr>
<td>DynaMesh®-ENDOLAP</td>
<td>preperitoneal techniques TEP, TAPP</td>
<td>22</td>
</tr>
<tr>
<td>DynaMesh®-ENDOLAP 3D</td>
<td>preperitoneal techniques TEP, TAPP</td>
<td>24</td>
</tr>
</tbody>
</table>

# Implants for abdominal wall hernias

<table>
<thead>
<tr>
<th>Implant Type</th>
<th>Technique</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>DynaMesh®-IPOM</td>
<td>intraperitoneal Ventral hernia</td>
<td>28</td>
</tr>
<tr>
<td>DynaMesh®-CICAT</td>
<td>extraperitoneal Hernia prophylaxis Ventral hernia</td>
<td>30</td>
</tr>
</tbody>
</table>

# Implants for umbilical hernias

<table>
<thead>
<tr>
<th>Implant Type</th>
<th>Technique</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>DynaMesh®-IPOM</td>
<td>intraperitoneal</td>
<td>34</td>
</tr>
<tr>
<td>DynaMesh®-CICAT</td>
<td>extraperitoneal</td>
<td>35</td>
</tr>
</tbody>
</table>

# Implants for parastomal hernias

<table>
<thead>
<tr>
<th>Implant Type</th>
<th>Technique</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>DynaMesh®-IPST</td>
<td>intraperitoneal Prophylaxis of parastomal hernia</td>
<td>38</td>
</tr>
</tbody>
</table>

# Implants for hiatus hernias

<table>
<thead>
<tr>
<th>Implant Type</th>
<th>Technique</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>DynaMesh®-HIATUS</td>
<td>Repair of axial and para-oesophageal hernia</td>
<td>42</td>
</tr>
</tbody>
</table>

# Literature

<table>
<thead>
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<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Literature</td>
<td>44</td>
</tr>
</tbody>
</table>
Tailored Implants made of PVDF

Implants for inguinal hernias

DynaMesh®-LICHTENSTEIN

DynaMesh®-ENDOLAP 3D

DynaMesh®-ENDOLAP
Visceral Surgery
Inguinal hernias

Tailored Implants made of PVDF

For the repair of inguinal hernias using the Lichtenstein technique

DynaMesh®-LICHTENSTEIN

Allow for sufficient overlap when selecting mesh size.

<table>
<thead>
<tr>
<th>Product</th>
<th>Field of application</th>
<th>Surgical approach</th>
<th>Surgical technique</th>
<th>Mesh position</th>
<th>Fixation</th>
<th>Optimal handling</th>
<th>Optimal patient safety</th>
<th>Optimal patient comfort</th>
<th>Green line marker</th>
<th>Atraumatic selvedges</th>
<th>Visible technology</th>
</tr>
</thead>
<tbody>
<tr>
<td>LICHTENSTEIN</td>
<td>inguinal hernias</td>
<td>open</td>
<td>Lichtenstein</td>
<td>extraperitoneal (subfascial)</td>
<td>suture / bonding</td>
<td>p.8</td>
<td>p.8</td>
<td>p.16</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Can be used in the left and right groin.

Use and properties

Applies to all product sizes
Only applies to selected product sizes

For special sizes and other package sizes please see the attached sheet.
Less effort

DynaMesh®-LICHTENSTEIN is designed for safe and time-saving surgical handling. The elastic safety zone in the mesh, incorporated by using a special warp-knitting technique, makes it easier for the surgeon to achieve fold-free positioning of the implant.

Less risk

The newly constructed slit design makes for perfect tunnel modulation with optimal pressure distribution. This prevents spermatic cord stenosis and possible postoperative complications. In addition, the high tear propagation resistance at the end-point of the slit prevents mesh ruptures from occurring.

Fewer erosions

The atraumatic smooth selvedges in the slit reduce erosion formation on the spermatic cord [16]. They decrease postoperative pain and enable the patient to resume normal activity sooner.

Technical data

<table>
<thead>
<tr>
<th>Polymer (monofilament)</th>
<th>Excellent biocompatibility</th>
<th>Minimal foreign body reaction</th>
<th>Reduced bacterial adherence</th>
<th>High ageing resistance</th>
<th>Optimal dynamometry</th>
<th>No scar plate formation</th>
<th>Reactive surface area [m²/m²]</th>
<th>Tear propagation resistance [N]</th>
<th>Elasticity [%]</th>
<th>Tear propagation resistance [%]</th>
<th>Effective porosity [%]</th>
<th>Effective porosity at 2.5 N/cm [kg]</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>PVDF</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.28</td>
<td>33</td>
<td>49</td>
<td>23</td>
<td>73</td>
<td>69</td>
<td>59</td>
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</tbody>
</table>

For example: inguinal hernia, on the left
Tailored Implants made of PVDF

For all preperitoneal techniques for repair of the inguinal hernia: endoscopic (TEP), laparoscopic (TAPP) or open

**DynaMesh®-ENDOLAP**

Allow for sufficient overlap when selecting mesh size.

<table>
<thead>
<tr>
<th>Product</th>
<th>Field of application</th>
<th>Surgical approach</th>
<th>Surgical technique</th>
<th>Mesh position</th>
<th>Fixation</th>
<th>Optimal handling</th>
<th>Optimal patient safety</th>
<th>Optimal patient comfort</th>
<th>Green line marker</th>
<th>Atraumatic selvedges</th>
<th>Visible technology</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENDOLAP</td>
<td>inguinal hernias</td>
<td>endoscopic / laparoscopic / open</td>
<td>TEP / TAPP</td>
<td>extra-peritoneal</td>
<td>none/suture/bonding/stapler/tacker</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
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<td></td>
<td></td>
<td>p.8</td>
<td>p.8</td>
<td>p.12</td>
<td>p.16</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**DynaMesh®-ENDOLAP visible**

Size: 10 cm x 15 cm

<table>
<thead>
<tr>
<th>Size: 10 cm x 15 cm</th>
<th>PV101015F1 Unit = 1 EA / BX</th>
<th>PV101015F3 Unit = 3 EA / BX</th>
<th>PV101015F10 Unit = 10 EA / BX</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size: 12 cm x 15 cm</td>
<td>PV101215F3 Unit = 3 EA / BX</td>
<td>PV101215F10 Unit = 10 EA / BX</td>
<td></td>
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<tr>
<td>Size: 13 cm x 15 cm</td>
<td>PV101315F3 Unit = 3 EA / BX</td>
<td>PV101315F10 Unit = 10 EA / BX</td>
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<tr>
<td>Size: 13 cm x 17 cm</td>
<td>PV101317F3 Unit = 3 EA / BX</td>
<td>PV101317F10 Unit = 10 EA / BX</td>
<td></td>
</tr>
<tr>
<td>Size: 15 cm x 15 cm</td>
<td>PV101515F3 Unit = 3 EA / BX</td>
<td>PV101515F10 Unit = 10 EA / BX</td>
<td></td>
</tr>
<tr>
<td>Size: 10 cm x 15 cm</td>
<td>PV141015F1 Unit = 1 EA / BX</td>
<td>PV141015F10 Unit = 10 EA / BX</td>
<td></td>
</tr>
</tbody>
</table>

For special sizes and other package sizes please see the attached sheet.
Intraoperative unfolding

The special textile construction makes it easy to insert the mesh via the trocar and to unfold it intraoperatively. The antislip surface and special selvedges ensure wrinkle-free positioning. The green marker lines perform a dual function. They are used for rapid orientation and visual monitoring of whether the mesh is positioned tension-free.

Choice of method

DynaMesh®-ENDOLAP was developed specifically for endoscopic (TEP) and laparoscopic (TAPP) techniques. If the surgeon considers fixation of the implant to be necessary, all these methods are available to him/her.

Optimal pore size

The special warp-knitted structure results in very high textile porosity. It is the basis for very good effective porosity (65%) after the formation of foreign body granuloma, which prevents scar plates while providing high patient comfort.

Technical data

<table>
<thead>
<tr>
<th>Polymer (monofilament)</th>
<th>Excellent biocompatibility</th>
<th>Minimal foreign body reaction</th>
<th>Reduced bacterial adherence</th>
<th>Optimal dynamometry</th>
<th>No scar plate formation</th>
<th>Reactive surface at (mm²/m²)</th>
<th>Maximum stability at 1.6 N/cm</th>
<th>Elasticity at 1.6 N/cm</th>
<th>Tear Propagation resistance at (N)</th>
<th>Textile porosity at (%)</th>
<th>Effective porosity at 2.5 N/cm (%)</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>PVDF</td>
<td>4</td>
<td>10</td>
<td>10</td>
<td>11</td>
<td>13</td>
<td>1.47</td>
<td>33</td>
<td>48</td>
<td>21</td>
<td>70</td>
<td>65</td>
<td>54</td>
</tr>
</tbody>
</table>

1) Image of surgery by kind permission of Dr. A. Kuthe, DRK Hospital Clementinenhaus, Hanover.
Visceral Surgery
Inguinal hernias

Tailored Implants made of PVDF

DynaMesh®-ENDOLAP 3D

For endoscopic (TEP) and laparoscopic (TAPP) techniques for inguinal and femoral hernia repair

Use and properties

<table>
<thead>
<tr>
<th>Product</th>
<th>Field of application</th>
<th>Surgical approach</th>
<th>Surgical technique</th>
<th>Mesh position</th>
<th>Fixation</th>
<th>Optimal handling</th>
<th>Optimal patient safety</th>
<th>Optimal patient comfort</th>
<th>Green thread and line marker</th>
<th>CURVATOR®</th>
<th>Visible technology</th>
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</thead>
<tbody>
<tr>
<td>ENDOLAP 3D</td>
<td>inguinal / hernias</td>
<td>endoscopic / laparoscopic</td>
<td>TEP / TAPP</td>
<td>extra-peritoneal</td>
<td>none/suture/bonding/stapler/tacker</td>
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<td>✓</td>
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<tr>
<td>DynaMesh®-ENDOLAP 3D visible</td>
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</tr>
<tr>
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<td>Unit = 1 EA / BX</td>
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<td>PV131015F3</td>
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<td></td>
<td>PV131217F5</td>
<td>Unit = 5 EA / BX</td>
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</tr>
</tbody>
</table>

For special sizes and other package sizes please see the attached sheet.

Applies to all product sizes
Only applies to selected product sizes
Optimised shape

Three-dimensionally shaped net implants for repair of inguinal and femoral hernias in TEP/TAPP technique ensure time-saving and efficient work for the surgeon during the operation. With the DynaMesh® visible technology, which allows the position of the implant to be checked after surgery by MRI, an identical shape fitting the patient’s anatomy on both sides (right and left) has been developed.

Standardised positioning

Integrated markers aligned to anatomical landmarks (inguinal ligament, inferior epigastric vessels and external iliac vessels) ensure simple, always correct and standardised position of the implant.

DynaMesh®-ENDOLAP 3D for maximum patient safety

The Curvator® technology has been specially developed for implants that are subject to high deformation after surgery. The Curvator® technology enables DynaMesh®-ENDOLAP 3D to fit the anatomical conditions easily without folds even in the most critical areas.

DynaMesh®-ENDOLAP 3D for maximum patient comfort

Technical data

<table>
<thead>
<tr>
<th>Polymer (monofilament)</th>
<th>Excellent biocompatibility</th>
<th>Minimal foreign body reaction</th>
<th>Optimal dynamometry</th>
<th>Integrated markers aligned to anatomical landmarks</th>
<th>Maximum stability</th>
<th>Elasticity</th>
<th>Tear propagation resistance</th>
<th>Textile porosity</th>
<th>Effective porosity</th>
<th>Effective porosity at 2.5 N/cm</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>PVDF</td>
<td>1.82</td>
<td>35</td>
<td>25</td>
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<td>63/57</td>
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</tr>
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</table>

*Values CURVATOR®
## Implants for inguinal hernias

- **DynaMesh®-LICHTENSTEIN** - Lichtenstein technique
  - Page 20
- **DynaMesh®-ENDOLAP** - preperitoneal techniques
  - TEP, TAPP
  - Page 22
- **DynaMesh®-ENDOLAP 3D** - preperitoneal techniques
  - TEP, TAPP
  - Page 24

## Implants for abdominal wall hernias

- **DynaMesh®-IPOM** - intraperitoneal
  - Ventral hernia
  - Page 28
- **DynaMesh®-CICAT** - extraperitoneal
  - Hernia prophylaxis
  - Ventral hernia
  - Page 30

## Implants for umbilical hernias

- **DynaMesh®-IPOM** - intraperitoneal
  - Page 34
- **DynaMesh®-CICAT** - extraperitoneal
  - Page 35

## Implants for parastomal hernias

- **DynaMesh®-IPST** - intraperitoneal
  - Prophylaxis of parastomal hernia
  - Page 38

## Implants for hiatus hernias

- **DynaMesh®-HIATUS**
  - Repair of axial and para-oesophageal hernia
  - Page 42

## Literature

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Tailored Implants made of PVDF

Implants for abdominal wall hernias

DynaMesh®-CICAT
DynaMesh®-IPOM
DynaMesh®-IPOM

For the intraperitoneal onlay mesh technique in hernia surgery

Optimal handling in laparoscopic and open techniques

Abdominal wall hernia

Allow for sufficient overlap when selecting mesh size.

| DynaMesh®-IPOM | Size: d 12 cm round         | IP070012F1         | Unit = 1 EA / BX |
|                |                              | IP070012F3         | Unit = 3 EA / BX |
|                | Size: 10 cm x 15 cm          | IP071015F1         | Unit = 1 EA / BX |
|                |                              | IP071015F3         | Unit = 3 EA / BX |
|                | Size: 15 cm x 15 cm          | IP071515F1         | Unit = 1 EA / BX |
|                |                              | IP071515F3         | Unit = 3 EA / BX |
|                | Size: 15 cm x 20 cm          | IP071520F1         | Unit = 1 EA / BX |
|                |                              | IP071520F3         | Unit = 3 EA / BX |
|                | Size: 20 cm x 20 cm          | IP072020F1         | Unit = 1 EA / BX |
|                | Size: 20 cm x 25 cm          | IP072025F1         | Unit = 1 EA / BX |
|                | Size: 20 cm x 30 cm          | IP072030F1         | Unit = 1 EA / BX |
|                |                              | IP072030F3         | Unit = 3 EA / BX |
|                | Size: 28 cm x 37 cm          | IP072837F1         | Unit = 1 EA / BX |
|                | Size: 30 cm x 30 cm          | IP073030F1         | Unit = 1 EA / BX |
|                | Size: 30 cm x 45 cm          | IP073045F1         | Unit = 1 EA / BX |

| DynaMesh®-IPOM visible | Size: 30 cm x 30 cm | IP083030F1 | Unit = 1 EA / BX |

For special sizes and other package sizes please see the attached sheet.

Use and properties

<table>
<thead>
<tr>
<th>Field of application</th>
<th>Surgical approach</th>
<th>Surgical technique</th>
<th>Mesh position</th>
<th>Fixation</th>
<th>Optimal handling</th>
<th>Optimal patient safety</th>
<th>Optimal patient comfort</th>
<th>Green marker thread</th>
<th>PVDF barrier</th>
<th>Visible technology</th>
</tr>
</thead>
<tbody>
<tr>
<td>IPOM</td>
<td>abdominal wall</td>
<td>laparoscopic / open</td>
<td>IPOM</td>
<td>intra-peritoneal</td>
<td>suture/stapler/tacker</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

For special sizes and other package sizes please see the attached sheet.
Dual-layer composite mesh

DynaMesh®-IPOM is a dual-component structure specifically developed for the IPOM technique; it is composed 88% of high purity PVDF and 12% of polypropylene (PP). The parietal side (PP) promotes rapid and safe ingrowth into the abdominal wall. The PVDF layer on the visceral side forms a barrier to the intestines. PVDF demonstrably decreases the risks of adhesions compared with polypropylene [11] and thus reduces the risk of intestinal erosions. If implantation of several meshes is required (as in the sandwich technique, for example [9]), the open-pore structure means that implants can easily be overlapped.

Advantages for the patients

The open pore mesh construction facilitates the breakdown of seroma. The parietal side PP component has a green marker thread and must face the abdominal wall. The marker thread is located on the front surface and simultaneously shows the correct direction of the elasticity in the cranio-caudal direction. The textile implant can easily be cut to size extracorporeally and provided with more fixation threads. DynaMesh®IPOM facilitates intraoperative handling by offering very high transparency. The high resilience and minimal roll-up tendency enable optimal handling and fold-free placement. It is recommended that the mesh is attached under pre-tension to the abdominal wall while this is stretched during surgery.

The open pore mesh construction facilitates the breakdown of seroma. The parietal side PP component has a green marker thread and must face the abdominal wall. The marker thread is located on the front surface and simultaneously shows the correct direction of the elasticity in the cranio-caudal direction. The textile implant can easily be cut to size extracorporeally and provided with more fixation threads. DynaMesh®IPOM facilitates intraoperative handling by offering very high transparency. The high resilience and minimal roll-up tendency enable optimal handling and fold-free placement. It is recommended that the mesh is attached under pre-tension to the abdominal wall while this is stretched during surgery.

Insertion in the correct position and direction

The parietal side PP component has a green marker thread and must face the abdominal wall. The marker thread is located on the front surface and simultaneously shows the correct direction of the elasticity in the cranio-caudal direction. The textile implant can easily be cut to size extracorporeally and provided with more fixation threads. DynaMesh®IPOM facilitates intraoperative handling by offering very high transparency. The high resilience and minimal roll-up tendency enable optimal handling and fold-free placement. It is recommended that the mesh is attached under pre-tension to the abdominal wall while this is stretched during surgery.

Technical data

<table>
<thead>
<tr>
<th>Polymer (monofilament)</th>
<th>Excellent biocompatibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimal foreign body reaction</td>
<td>Reduced bacterial adherence</td>
</tr>
<tr>
<td>High ageing resistance</td>
<td>Optimal dynamometry</td>
</tr>
<tr>
<td>No scar plate formation</td>
<td>Retractability</td>
</tr>
<tr>
<td>Maximum stability</td>
<td>Elasticity</td>
</tr>
<tr>
<td>Elasticity</td>
<td>Tear propagation resistance</td>
</tr>
<tr>
<td>Textile porosity</td>
<td>Effective porosity</td>
</tr>
<tr>
<td>Effective porosity at 2.5 N/cm</td>
<td></td>
</tr>
<tr>
<td>Classification</td>
<td></td>
</tr>
</tbody>
</table>
Tailored Implants made of PVDF

For repair and prophylaxis of abdominal wall hernia with extraperitoneal mesh position

**DynaMesh®-CICAT**

Abdominal wall hernia

Allow for sufficient overlap when selecting mesh size.

---

### **DynaMesh®-CICAT**

<table>
<thead>
<tr>
<th>Size: d 10 cm round</th>
<th>PV090010F3</th>
<th>Unit = 3 EA / BX</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size: 10 cm x 10 cm</td>
<td>PV091010F3</td>
<td>Unit = 3 EA / BX</td>
</tr>
<tr>
<td>Size: 15 cm x 15 cm</td>
<td>PV091515F3</td>
<td>Unit = 3 EA / BX</td>
</tr>
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</table>

### **DynaMesh®-CICAT** longitudinal

<table>
<thead>
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<th>Unit = 2 EA / BX</th>
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<td>PV091525F2</td>
<td>Unit = 2 EA / BX</td>
</tr>
<tr>
<td></td>
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<tr>
<td>Size: 15 cm x 30 cm</td>
<td>PV091530F2</td>
<td>Unit = 2 EA / BX</td>
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<td></td>
<td>PV091530F5</td>
<td>Unit = 5 EA / BX</td>
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<tr>
<td>Size: 18 cm x 40 cm</td>
<td>PV091840F2</td>
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<td>Size: 20 cm x 30 cm</td>
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<td>PV092030F5</td>
<td>Unit = 5 EA / BX</td>
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<tr>
<td>Size: 30 cm x 45 cm</td>
<td>PV093045F1</td>
<td>Unit = 1 EA / BX</td>
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<tr>
<td></td>
<td>PV093045F3</td>
<td>Unit = 3 EA / BX</td>
</tr>
<tr>
<td>Size: 45 cm x 60 cm</td>
<td>PV094560F1</td>
<td>Unit = 1 EA / BX</td>
</tr>
</tbody>
</table>

### **DynaMesh®-CICAT** transversal

| Size: 40 cm x 20 cm | PV094020F1 | Unit = 1 EA / BX |

### **DynaMesh®-CICAT visible**

| Size: 20 cm x 30 cm | PV162030F1 | Unit = 1 EA / BX |

For special sizes and other package sizes please see the attached sheet.

---

Use and properties

<table>
<thead>
<tr>
<th>Product</th>
<th>Field of application</th>
<th>Surgical approach</th>
<th>Surgical technique</th>
<th>Mesh position</th>
<th>Fixation</th>
<th>Optimal handling</th>
<th>Optimal patient safety</th>
<th>Optimal patient comfort</th>
<th>Green line marker</th>
<th>Tri-elasticity</th>
<th>Visible technology</th>
</tr>
</thead>
<tbody>
<tr>
<td>CICAT</td>
<td>abdominal wall</td>
<td>open / mini-open</td>
<td>MILOS</td>
<td>extraperitoneal (sublay/onlay/inlay)</td>
<td>suture / bonding</td>
<td>✔️ ✔️ ✔️ ✔️ ✔️</td>
<td>p.8</td>
<td>p.8</td>
<td></td>
<td></td>
<td>p.16</td>
</tr>
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</table>
Optimally adapted tri-elasticity

Because of its tri-elasticity, which is adapted to the anatomical and biomechanical properties (dynamometry) of the human abdominal wall, DynaMesh®-CICAT provides the highest possible degree of patient comfort.

Clear-cut use

Safe positioning

A requirement for lasting surgical success is that the implant must be correctly positioned. This is why we have incorporated green orientation strips into the implant. They must always run in the craniocaudal direction.

Safe placement

The antislip surface ensures stable positioning of the mesh. It also facilitates handling and fixation. Excellent porosity allows direct contact of the tissue layers through the mesh and promotes rapid incorporation.

Please note: for this reason, DynaMesh®-CICAT must not be placed intraperitoneally.

Safe for the patients

The unique properties of the mesh lead to more rapid convalescence, long-term safety and the highest possible patient comfort.

Technical data
## Contents

### Implants for inguinal hernias

- **DynaMesh®-LICHTENSTEIN** - Lichtenstein technique  
  Page 20

- **DynaMesh®-ENDOLAP** - preperitoneal techniques  
  TEP, TAPP  
  Page 22

- **DynaMesh®-ENDOLAP 3D** - preperitoneal techniques  
  TEP, TAPP  
  Page 24

### Implants for abdominal wall hernias

- **DynaMesh®-IPOM** - intraperitoneal  
  Ventral hernia  
  Page 28

- **DynaMesh®-CICAT** - extraperitoneal  
  Hernia prophylaxis  
  Ventral hernia  
  Page 30

### Implants for umbilical hernias

- **DynaMesh®-IPOM** - intraperitoneal  
  Page 34

- **DynaMesh®-CICAT** - extraperitoneal  
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### Implants for parastomal hernias

- **DynaMesh®-IPST** - intraperitoneal  
  Prophylaxis of parastomal hernia  
  Page 38

### Implants for hiatus hernias

- **DynaMesh®-HIATUS**  
  Repair of axial and para-oesophageal hernia  
  Page 42

### Literature

Page 44
Tailored Implants made of PVDF

Implants for umbilical hernias

DynaMesh®-CICAT

DynaMesh®-IPOM
A Danish register study was able to demonstrate that the risk of recurrence of small mesh-repaired umbilical hernias with hernia gaps ≤ 2 cm is **50% lower** compared to repair with sutures.*


For further product information see DynaMesh®-IPOM page 28

**Use and properties**

<table>
<thead>
<tr>
<th>Product</th>
<th>Field of application</th>
<th>Surgical approach</th>
<th>Surgical technique</th>
<th>Mesh position</th>
<th>Fixation</th>
<th>Optimal handling</th>
<th>Optimal patient safety</th>
<th>Optimal patient comfort</th>
<th>Green thread</th>
<th>Tri-elasticity</th>
<th>Visible technology</th>
</tr>
</thead>
<tbody>
<tr>
<td>IPOM</td>
<td>abdominal wall</td>
<td>laparoscopic / open</td>
<td>IPOM</td>
<td>intra-peritoneal</td>
<td>staple/tacker</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>CICAT</td>
<td>abdominal wall</td>
<td>open / mini open</td>
<td>PUMP / MILOS</td>
<td>extraperitoneal (subfascial/sublay)</td>
<td>none / bonding</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

For special sizes and other package sizes please see the attached sheet.

For repair of umbilical hernia with intraperitoneal mesh position

For repair of umbilical hernia with intraperitoneal mesh position

*Applies to all product sizes
Only applies to selected product sizes
Does not apply

p.8  p.8  p.16
DynaMesh®-CICAT

For repair of umbilical hernia with extraperitoneal mesh position

DynaMesh®-CICAT

- Size: 05 cm x 06 cm PV090506F5 Unit = 5 EA / BX
- Size: d 10 cm round PV090101F3 Unit = 3 EA / BX
- Size: 10 cm x 10 cm PV091010F3 Unit = 3 EA / BX
- Size: 15 cm x 15 cm PV091515F3 Unit = 3 EA / BX

DynaMesh®-CICAT visible

- Size: 05 cm x 06 cm PV160506F5 Unit = 5 EA / BX

Allow for sufficient overlap when selecting mesh size.

Polymer (monofilament) | PVDF | PP | 88% | 12%
--- | --- | --- | --- | ---
Excellent biocompatibility | 6 | 6 | 6 | 6
Minimal foreign body reaction | 5 | 5 | 5 | 5
Reduced bacterial adherence | 6 | 6 | 6 | 6
High ageing resistance | 6 | 6 | 6 | 6
Optimal dynamometry | 6 | 6 | 6 | 6
No scar plate formation | 6 | 6 | 6 | 6
Textile porosity | 57 | 57 | 57 | 57
Effective porosity | 57 | 57 | 57 | 57
Maximum stability | 46 | 46 | 46 | 46
Elasticity at 16 N/cm | 57 | 57 | 57 | 57
Tear propagation resistance | 61 | 61 | 61 | 61
Effective porosity at 2.5 N/cm | 57 | 57 | 57 | 57
Classification | 1a | 1a | 1a | 1a

For special sizes and other package sizes please see the attached sheet.

The green marker thread (crano-caudal) is used for orientation of the mesh

The antislip surface ensures stable positioning of the mesh and renders optimal handling

Ideal porosity promotes rapid incorporation of the mesh

For further product information see DynaMesh®-CICAT page 30
## Implants for inguinal hernias

- **DynaMesh®-LICHTENSTEIN** - Lichtenstein technique  [20](#)
- **DynaMesh®-ENDOLAP** - preperitoneal techniques  [22](#)
  - TEP, TAPP
- **DynaMesh®-ENDOLAP 3D** - preperitoneal techniques  [24](#)
  - TEP, TAPP

## Implants for abdominal wall hernias

- **DynaMesh®-IPOM** - intraperitoneal
  - Ventral hernia  [28](#)
- **DynaMesh®-CICAT** - extraperitoneal
  - Hernia prophylaxis
  - Ventral hernia  [30](#)

## Implants for umbilical hernias

- **DynaMesh®-IPOM** - intraperitoneal  [34](#)
- **DynaMesh®-CICAT** - extraperitoneal  [35](#)

## Implants for parastomal hernias

- **DynaMesh®-IPST** - intraperitoneal  [38](#)
  - Prophylaxis of parastomal hernia

## Implants for hiatus hernias

- **DynaMesh®-HIATUS**  [42](#)
  - Repair of axial and para-oesophageal hernia

## Literature

[44](#)
Tailored Implants made of PVDF

Implants for parastomal hernias

DynaMesh®-IPST
For the prevention of parastomal hernia with intraperitoneal mesh position

DynaMesh®-IPST

<table>
<thead>
<tr>
<th>Product</th>
<th>Field of application</th>
<th>Surgical approach</th>
<th>Surgical technique</th>
<th>Mesh position</th>
<th>Fixation</th>
<th>Optimal handling</th>
<th>Optimal patient safety</th>
<th>Green marker thread</th>
<th>PVDF barrier</th>
<th>Visible technology</th>
</tr>
</thead>
<tbody>
<tr>
<td>IPST</td>
<td>parastomal</td>
<td>laparoscopic / open</td>
<td>IPOM</td>
<td>intra-peritoneal</td>
<td>suture/stapler/tacker</td>
<td>● ● ● ● ●</td>
<td>● ● ● ● ●</td>
<td>● ● ● ● ●</td>
<td>● ●</td>
<td></td>
</tr>
</tbody>
</table>

For further product information see DynaMesh®-IPOM page 28

The DynaMesh®-IPOM product group is available for repair of parastomal hernia with intraperitoneal mesh position in keyhole, Sugerbaker or sandwich technique (see page 28).

The DynaMesh®-CICAT product group is available for repair and prophylaxis of parastomal hernia with extraperitoneal mesh position (sublay, onlay) (see page 30).

Use and properties
Optimal handling

The implant is made from a single piece of mesh for a seamless junction with the intestinal cuff. DynaMesh®-IPST is a three-dimensional preshaped implant providing excellent elasticity and flexibility – which facilitates stomaplasty preparation for the surgeon.

Optimal comfort

In both open and laparoscopic operations, minimal tissue irritation occurs when inserting and placing the implant. This also applies to the period afterwards – a guarantee of maximum patient comfort.

Optimal safety

The dual-layer composite structure promotes rapid and safe ingrowth into the abdominal wall while at the same time reducing the risks of adhesions on the visceral side. The elastic funnel with no sharp selvedges leads to more secure integration of the terminal segment of bowel and reliably prevents parastomal hernia formation [15] [61].

Technical data

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polymer (monofilament)</td>
<td>PVDF [88%] PP [12%]</td>
</tr>
<tr>
<td>Excellent biocompatibility</td>
<td>✔ ✔ ✔ ✔ ✔ ✔</td>
</tr>
<tr>
<td>Minimal foreign body reaction</td>
<td>✔ ✔ ✔ ✔ ✔ ✔</td>
</tr>
<tr>
<td>Reduced bacterial adherence</td>
<td>✔ ✔ ✔ ✔ ✔ ✔</td>
</tr>
<tr>
<td>Optimal dynamometry</td>
<td>✔ ✔ ✔ ✔ ✔ ✔</td>
</tr>
<tr>
<td>No scar plate formation</td>
<td>✔ ✔ ✔ ✔ ✔ ✔</td>
</tr>
<tr>
<td>Reactive surface</td>
<td>1.90 m²/m²</td>
</tr>
<tr>
<td>Maximum stability</td>
<td>74 N/cm²</td>
</tr>
<tr>
<td>Elasticity</td>
<td>29 N/cm²</td>
</tr>
<tr>
<td>Tear propagation resistance</td>
<td>58 N/cm²</td>
</tr>
<tr>
<td>Textile porosity</td>
<td>43 %</td>
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<tr>
<td>Effective porosity</td>
<td>30 %</td>
</tr>
<tr>
<td>Classification</td>
<td>1a</td>
</tr>
</tbody>
</table>

*Note: Table values are placeholders and should be replaced with actual data.*
## Implants for inguinal hernias

- **DynaMesh®-LICHTENSTEIN** - Lichtenstein technique  
  - Page 20
- **DynaMesh®-ENDOLAP** - preperitoneal techniques  
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- **DynaMesh®-ENDOLAP 3D** - preperitoneal techniques  
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## Implants for abdominal wall hernias

- **DynaMesh®-IPOM** - intraperitoneal  
  - Ventral hernia  
  - Page 28
- **DynaMesh®-CICAT** - extraperitoneal  
  - Hernia prophylaxis  
  - Ventral hernia  
  - Page 30

## Implants for umbilical hernias

- **DynaMesh®-IPOM** - intraperitoneal  
  - Page 34
- **DynaMesh®-CICAT** - extraperitoneal  
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## Implants for parastomal hernias

- **DynaMesh®-IPST** - intraperitoneal  
  - Prophylaxis of parastomal hernia  
  - Page 38

## Implants for hiatus hernias

- **DynaMesh®-HIATUS**  
  - Repair of axial and para-oesophageal hernia  
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## Literature

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Tailored Implants made of PVDF

DynaMesh®-HIATUS

HIATUS
Visceral Surgery
Hiatus hernias

**DynaMesh®-HIATUS**

**Size:** 07 cm x 12 cm  
**PV610712F1**  
**Unit = 1 EA / BX**  
**PV610712F3**  
**Unit = 3 EA / BX**  
**Size:** 08 cm x 13 cm  
**PV610813F1**  
**Unit = 1 EA / BX**  
**PV610813F3**  
**Unit = 3 EA / BX**

For maximum patient safety all DynaMesh®-HIATUS implants come with DynaMesh® visible technology (see page 17).

**Sophisticated design for effective prevention of mesh erosion for maximum patient safety**

The region of the hiatus oesophagus is extremely mobile due to respiration and swallowing. The placement of mesh implants in this region of high mobility demands mature technology for effective prevention of mesh erosion. DynaMesh®-HIATUS has been specially designed for the repair of such extremely demanding hiatus hernias.

The sophisticated construction of the implant combines three technologies and thus ensures the maximum degree of patient safety.

The stable construction and the highly effective porosity are a substantial part of keeping the opening for the oesophagus (red marker) virtually constant even over the long term.

**Use and properties**

<table>
<thead>
<tr>
<th>Product</th>
<th>Field of application</th>
<th>Surgical approach</th>
<th>Surgical technique</th>
<th>Mesh position</th>
<th>Fixation</th>
<th>Optimal handling</th>
<th>Optimal patient safety</th>
<th>Optimal patient comfort</th>
<th>Green line marker</th>
<th>Atraumatic selvedges</th>
<th>Visible technology</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIATUS</td>
<td>Diaphragm</td>
<td>Laparoscopic</td>
<td>-</td>
<td>onlay</td>
<td>suture / bonding / tacker</td>
<td>● ● ● ● ● ●</td>
<td>● ● ● ● ● ●</td>
<td>● ● ● ● ● ●</td>
<td>● ● ● ● ● ●</td>
<td>● ● ● ● ● ●</td>
<td></td>
</tr>
</tbody>
</table>

For more information see the specified pages of the DynaMesh® HERNIAS catalogue p.8  
p.8  
p.16

For repair of axial and para-oesophageal hernia
Shape stability under load

Conventional mesh structures are deformed under load. Constriction of the mesh in the region of the hiatus may reduce the distance between mesh implant and oesophagus, eventually causing mesh erosion. DynaMesh®-HIATUS is based on a sophisticated textile design with rectangular pores, which even under load retain a high degree of shape stability.

High effective porosity

Mesh implants tend to shrink after incorporation in vivo. DynaMesh®-HIATUS has a high effective porosity, which ensures that the mesh implant is thoroughly incorporated. During incorporation the use of the proven and highly biocompatible PVDF polymer ensures that scarring is kept to a minimum. The good incorporation of the mesh implants combined with little scarring leads to minimisation of mesh shrinkage and permanently high flexibility of the incorporated implant.

Smooth, warp-knitted mesh margins

If the mesh does come into contact with the oesophagus in spite of all measures to prevent it, DynaMesh®-HIATUS has smooth mesh margins that minimise the danger of mesh erosion.

Technical data

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polymer (monofilament)</td>
<td>PVDF</td>
</tr>
<tr>
<td>Excellent biocompatibility</td>
<td>✔️</td>
</tr>
<tr>
<td>Minimal foreign body reactions</td>
<td>✔️</td>
</tr>
<tr>
<td>Reduced bacterial adherence</td>
<td>✔️</td>
</tr>
<tr>
<td>High ageing resistance</td>
<td>✔️</td>
</tr>
<tr>
<td>Optimal dynamometry</td>
<td>✔️</td>
</tr>
<tr>
<td>No scar plate formation</td>
<td>✔️</td>
</tr>
<tr>
<td>Reactive surface</td>
<td>1,9</td>
</tr>
<tr>
<td>Maximum stability</td>
<td>58</td>
</tr>
<tr>
<td>Elasticity</td>
<td>13</td>
</tr>
<tr>
<td>Textile porosity</td>
<td>71</td>
</tr>
<tr>
<td>Effective porosity</td>
<td>68</td>
</tr>
<tr>
<td>Effective porosity at 2,5 N/cm</td>
<td>68</td>
</tr>
<tr>
<td>Classification</td>
<td>1a</td>
</tr>
</tbody>
</table>

PVDF: p.10

[Table with values for various properties]
Polymer PVDF as Implant Material

1. Klinge U, Klosterhalfen B, Ottinger A P, Junge K, Schumpelick V:  
   PVDF as a new Polymer for the Construction of Surgical Meshes  
   *Biomaterials* 23/16: 3487-3493; ©Elsevier, NL (2002)

   Comparison of Long-Term Biocompatibility of PVDF and PP Meshes  
   ©Informa Healthcare, Inc. USA (2011)

   Borós M, Wishahi M, Heusch C, Otto T:  
   Evaluation of Biocompatibility of Alloplastic Materials:  
   Development of a Tissue Culture in Vitro Test System  
   *Surgical Technology International* XXI; ©Universal Medical Press, Inc. USA (2012)

10. Berger D, Bientzle M:  
   Polyvinylidene Fluoride: A suitable Mesh Material for Laparoscopic Incisional and  
   Parastomal Hernia Repair!  
   A prospective, observational study with 344 patients  

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   Placement in a Rodent Animal Model  
   ©Springer Science+Business Media (4/2008)

27. Mary C, Marois Y, King MW, et al:  
   Comparison of the in vivo behavior of polyvinylidene fluoride and polypropylene sutures used  
   in vascular surgery.  

52. Silva RA, Silva PA, Carvalho ME:  
   Degradation studies of some polymeric biomaterials: Polypropylene (PP) and  
   polyvinylidene difluoride (PVDF).  

Product Design – Essential Mesh Parameters

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   ©Wiley Periodicals, Inc. (5/2007)

8. Klinge U, Klosterhalfen B:
   Modified Classification of Surgical Meshes for Hernia Repair
   Based on the Analyses of 1,000 Explanted Meshes

25. Klosterhalfen B, Junge K, Klinge U:
   The lightweight and large porous mesh concept for hernia repair.

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Inguinal Hernia Treatment

DynaMesh®-ENDOLAP, DynaMesh®-ENDOLAP 3D and DynaMesh®-LICHTENSTEIN

   Schumpelick V, Klinge U:
   Damage to the Spermatic Cord by the Lichtenstein and TAPP Procedures in a Pig Model
   Surgical Endoscopy 25/1: 146-52, DOI 10.1007/s00464-010-1148-1;

   Prospective Multicenter Blinded Randomized Study Comparing PP and PVDF Mesh Implants in
   Lichtenstein Procedure with Respect to Pain and Recurrence.
   JSM Surgical Procedures 1: (2018)

Ventral Hernia Treatment

DynaMesh®-IPOM and DynaMesh®-CICAT

14. Berger D, Bientzle M:
   Principles of laparoscopic repair of ventral hernias.

   Effectiveness of Prophylactic Intraperitoneal Mesh Implantation for Prevention of
   Incisional Hernia in Patients Undergoing Open Abdominal Surgery: A Randomized Clinical Trial.
Magnetic Resonance-Visible Meshes for Laparoscopic Ventral Hernia Repair. 

57. Muysoms F, Beckers R, Kyle-Leinhase I: 
Prospective cohort study on mesh shrinkage measured with MRI after laparoscopic ventral hernia repair with an intraperitoneal iron oxide-loaded PVDF mesh. 

Polyvinylidene Fluoride Mesh (PVDF, DynaMesh®-IPOM) in The Laparoscopic Treatment of Incisional Hernia: A Prospective Comparative Trial versus Gore® ePTFE DUALMESH® Plus. 
*Surgical technology international* 28:147–151 (2016)

**Parastomal Hernia Treatment**

DynaMesh®-IPOM and DynaMesh®-IPST

9. Berger D, Bientzle M: 

12. Berger D: 
Laparoskopische Reparation der parastomalen Hernie. 

15. Berger D: 
Prevention of parastomal hernias by prophylactic use of a specially designed intraperitoneal onlay mesh (Dynamesh IPST®). 

Preventing parastomal hernias with systematic intraperitoneal specifically designed mesh. 
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Prevention of parastomal hernias with 3D funnel meshes in intraperitoneal onlay position by placement during initial stoma formation. 

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Laparoscopic stoma relocation for parastomal hernia treatment by using a magnetic resonance visible three-dimensional implant.

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Changes in the Surgical Management of Parastomal Hernias Over 15 Years: Results of 135 Cases.

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**Hiatal Hernia Treatment**

**DynaMesh®-HIATUS**

First human magnetic resonance visualisation of prosthetics for laparoscopic large hiatal hernia repair.

**DynaMesh® visible Technology**

First In-Human Magnetic Resonance Visualization of Surgical Mesh Implants for Inguinal Hernia Treatment.
*Invest Radiol.* (2013)

In vivo MRI visualization of mesh shrinkage using surgical implants loaded with superparamagnetic iron oxides.
*Surgical Endoscopy* 26:1468–1475. (2011)

First human magnetic resonance visualisation of prosthetics for laparoscopic large hiatal hernia repair.

Magnetic Resonance-Visible Meshes for Laparoscopic Ventral Hernia Repair.


See our video library on our web site at http://en.dyna-mesh.com/videos-gb/
Legends for the technical data

(a) Ratio of implant reactive surface area (thread surface) to implant surface area (see p. 12)
(b) measured in the strip tensile test
(c) modified trouser tear test
(d) the Mühl method [6]
(e) Klinge’s classification [8]