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Quality and Experience

Made in Germany

Titanised mesh implants for hernia surgery

- TiMESH
- TiLENE® Blue
- TiLENE®
- TiSURE®

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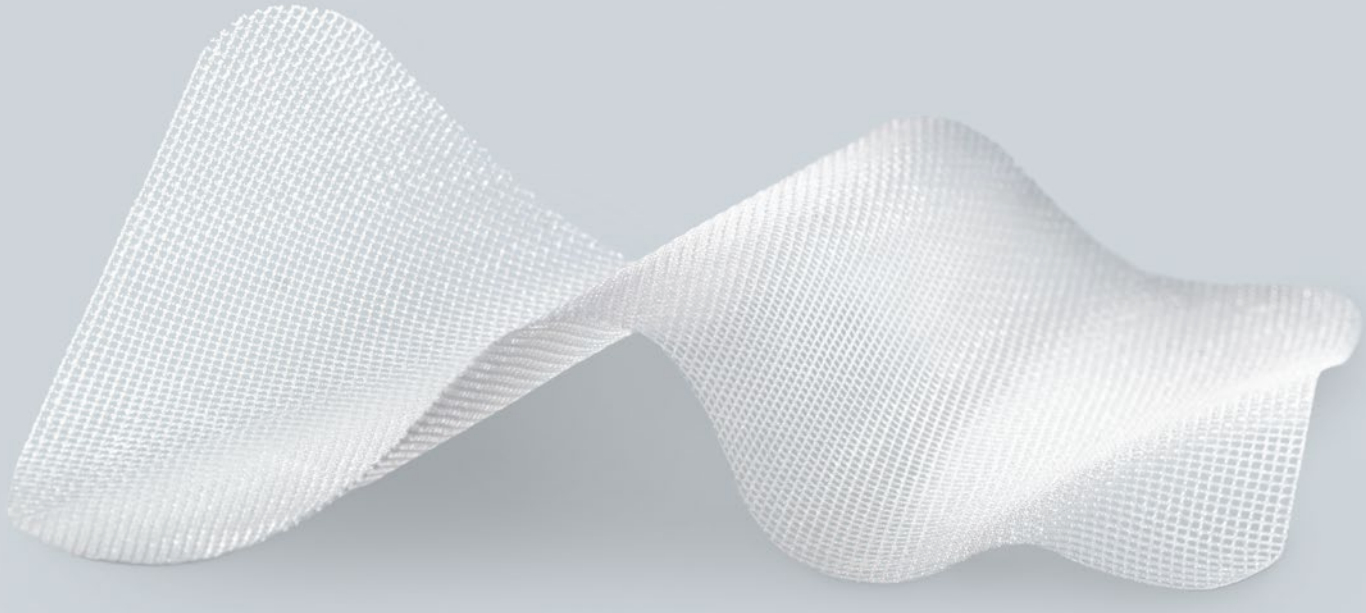


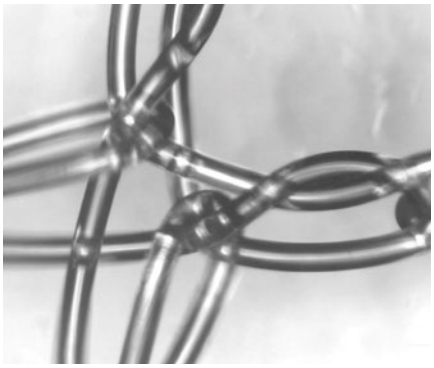
Our titanised hernia meshes TiMESH, TiLENE® Blue, TiLENE® and TiSURE® are hydrophilic with excellent body compatibility providing better patient outcomes.

General Benefits

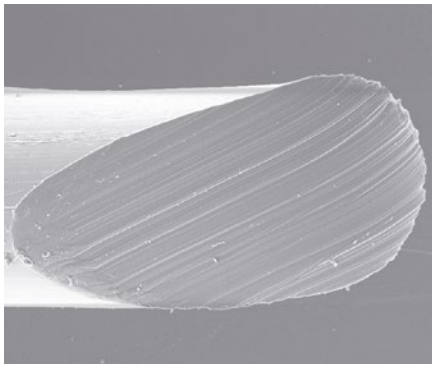
- Titanium's body compatibility properties transferred to a hernia mesh
- A better quality of life for patients[1]
- Easy handling and excellent visibility
- One mesh for every hernia indication (incl. IPOM*)

General Details

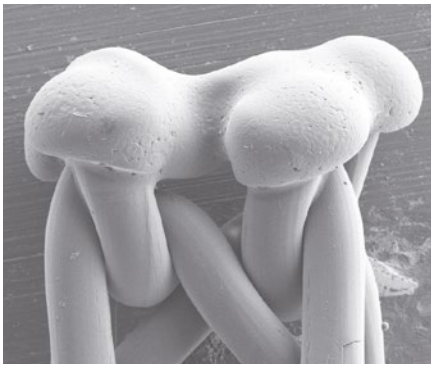
- **Titanised type 1a polypropylene meshes**
- **Macroporous:** pore size of 1 or 3 mm
- **Lightweight:** 16, 24, 35 or 65 g/m²
- **Monofilament fabric**
- **Laser cut atraumatic edges**
- **Non-absorbable**
- **EO-sterilised (ethylene oxide), pyrogen-free**



Monofilament fabric



Thread cross-section (titanium layer is not visible due to being less than 100 nm)



Atraumatic, laser cut mesh border

Mesh configurations

Product	Weight	Pore size
TiMESH, TiLENE®, TiSURE®	16 g/m², 35 g/m², 65 g/m²	1 mm
TiLENE® Blue	24 g/m²	3 mm

* excl. TiMESH 16 g/m²

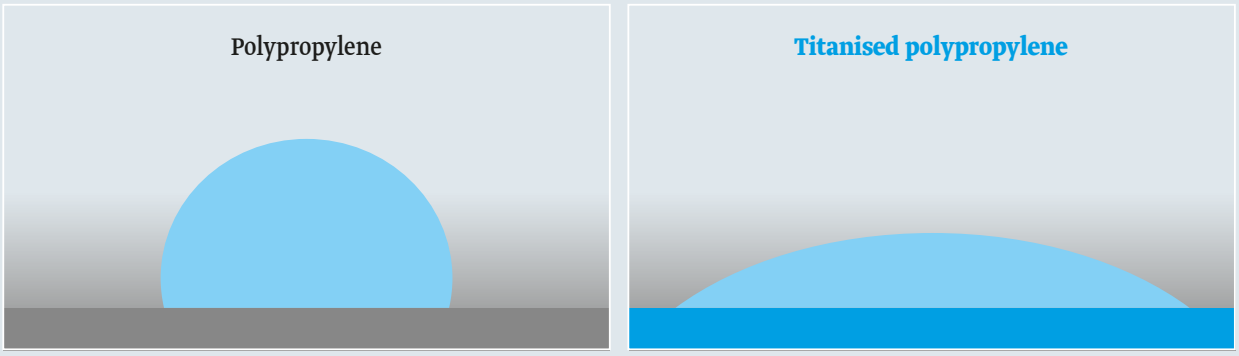
Knowledge

Titanisation of mesh implants

Titanium is one of the most biocompatible materials and the preferred alloy used in various surgical applications since 1946.[2] In 2002, pfm medical successfully developed the first procedure worldwide that permits the application of titanium to flexible and elastic primary materials, specifically polypropylene meshes.

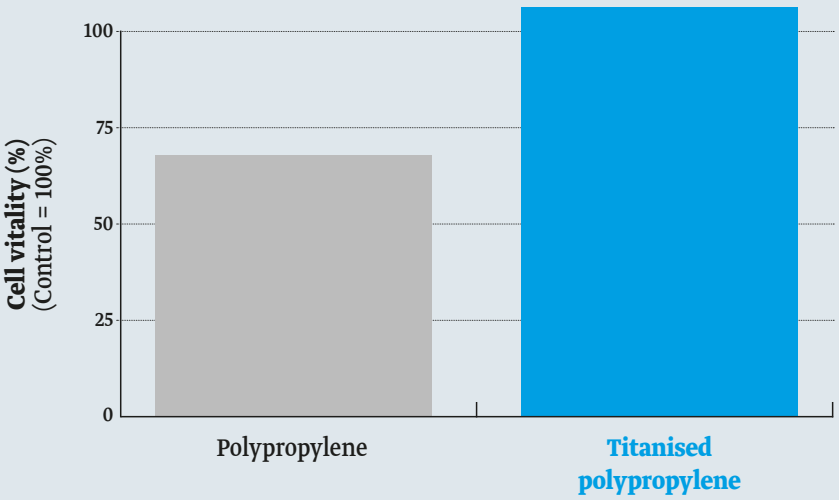
TiMESH, TiLENE® Blue, TiLENE® and TiSURE® mesh implants are type 1a polypropylene meshes (macroporous, lightweight, and monofilamentous) which are hydrophilic due to titanisation. A hydrophilic mesh implant integrates better into surrounding tissue than a hydrophobic material.

Water droplet behaviour on a hydrophobic and hydrophilic surface



Studies have proven hydrophilic surfaces to have the following advantages:

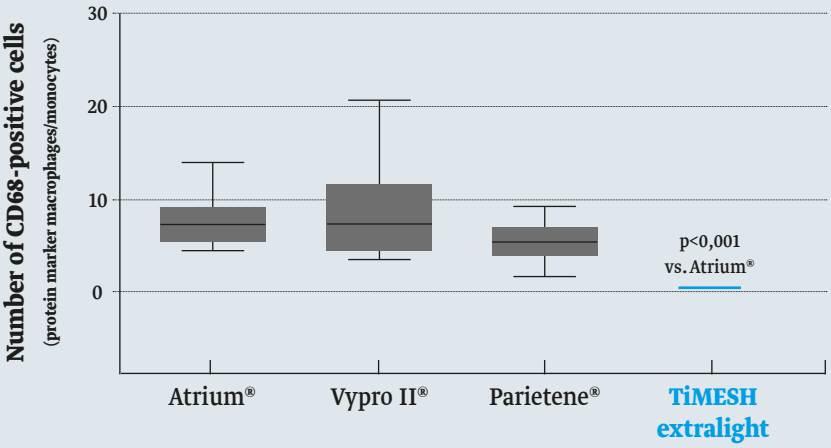
Increased cell vitality through titanisation

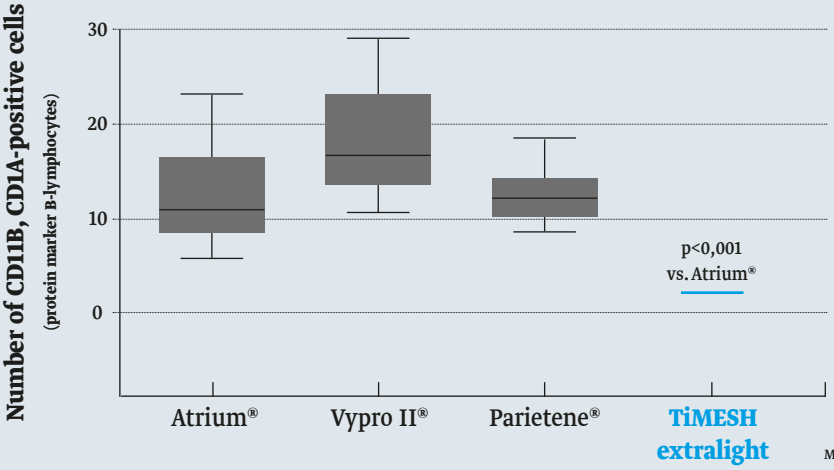


Improved cell growth
Fibroblasts on titanised surfaces are vital and grow better than on polypropylene surfaces.[3]

Modified according to Lehle et al. FORBIOMAT II. 2002, 149-173

Reduced inflammatory reaction through titanisation



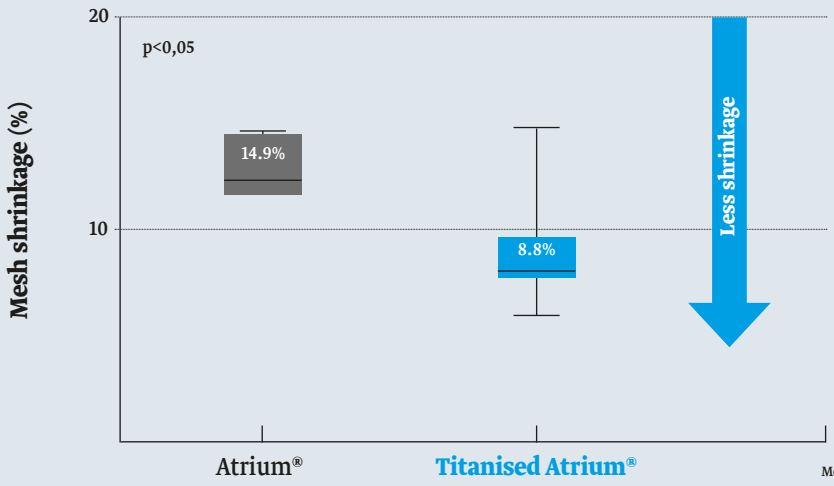


Reduced inflammation risk and better tolerability
All implants cause an inflammatory response, the lower the inflammatory response, the better.

Titanised polypropylene meshes cause a lower inflammatory response than standard polypropylene meshes.[4]

Modified according to Scheidbach et al., Surg Endosc , 2004, 18: 211-220

Less shrinkage through titanisation



Less scar formation and decreased mesh shrinkage
The higher the inflammation, the thicker the scar tissue.

The inflammatory response to a titanised polypropylene mesh is lower than to a standard mesh, resulting in less scar formation. As a vital result, the fibrous scar tissue surrounding the mesh shrinks less over time.[5,6,7]

Modified according to Scheidbach et al.; Eur Surg Res , 2004, 36: 313-317

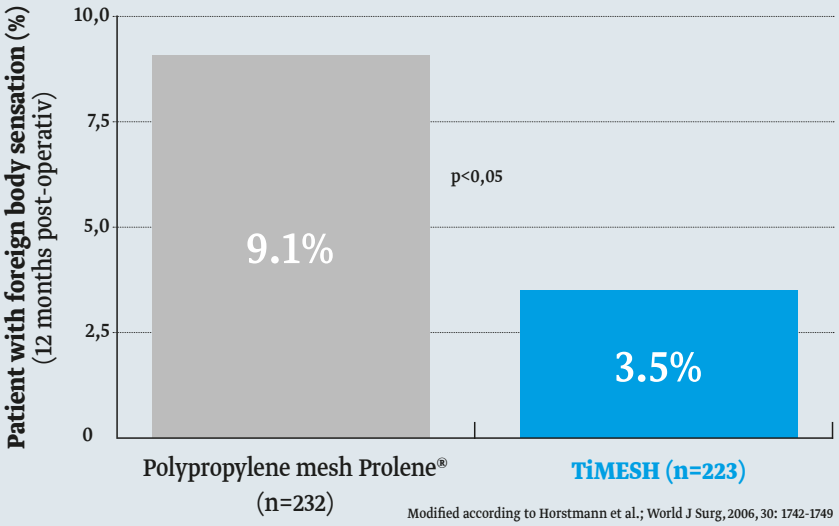
Benefits for patients

Better tolerability
The titanisation shows lower volumes of postoperative seromas.[1]

Less postoperative pain
Patients suffer from less pain and thus, the consumption of analgesics is lower.[8]

Quicker recovery time
The use of titanised implants allows patients to return to a symptom-free everyday life earlier.[8,9]

Decreased foreign body sensation
The titanisation reduces the inflammatory response, which causes less scarring and decreased mesh shrinkage.[5,6,7]
Patients experience reduced foreign body sensation due to the excellent ingrowth.[1]



Modified according to Horstmann et al.; World J Surg, 2006, 30: 1742-1749

Less foreign body sensation with TiMESH

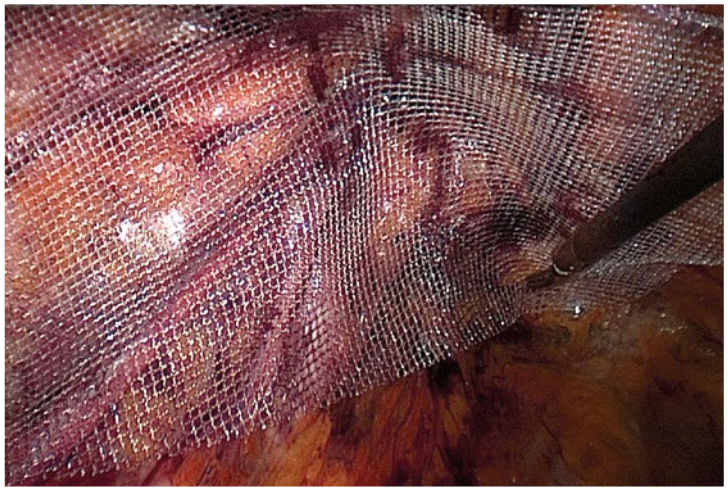
Improved quality of life
In addition to the skills of the surgeon, the quality of the mesh material is a critical factor in the long-term success of hernia repair. Studies show: Titanised meshes increase the patients' quality of life.[1,10]

Benefits for users

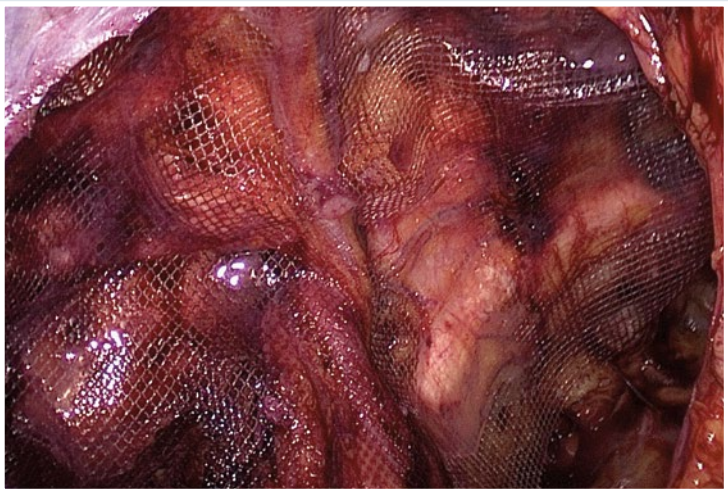
Easy handling
The hydrophilic properties of the titanised surface allow the mesh to stick to the abdominal wall. Thus, excellent modelling characteristics are given.

Outstanding visibility
When the mesh sticks to the abdominal wall, the surgical field remains visible. This outstanding visibility minimises the risk of injury to nerves or vessels.

Smooth trocar insertion
Rolled-up titanised meshes can be directly inserted into the trocar (up to 3 mm trocar with TiMESH extralight 16 g/m²). The excellent plasticity makes the unrolling just as straightforward.



Easy handling
TiMESH light (35 g/m²)
during TEP surgery
(with the kind permission of
Professor Dr. Ferdinand Köckerling,
Vivantes Klinikum Spandau,
Berlin, Germany)



Outstanding visibility
TiMESH extralight (16 g/m²)
during TAPP surgery
(with the kind permission of
Professor Dr. Hans Martin Schardey,
Krankenhaus Agatharied GmbH,
Hausham, Germany)

Optimised workflow for surgeons

Application

One mesh for all hernia types

The titanised mesh implants are designed for universal application in all intra- and extraperitoneal types of hernias regardless of the surgical technique. After selecting the appropriate mesh size, the surgeon can use it for any surgical technique including IPOM*. Individual mesh adaptation is possible at any time.

Suitable for all kind of hernias

- Inguinal
- Femoral
- Incisional
- Umbilical
- Epigastric
- Parastomal
- Hiatal

Advantages of standardisation

- Reduced number of articles
- Simplified ordering process
- Less storage required in surgery rooms

Intraperitoneal implantation procedures

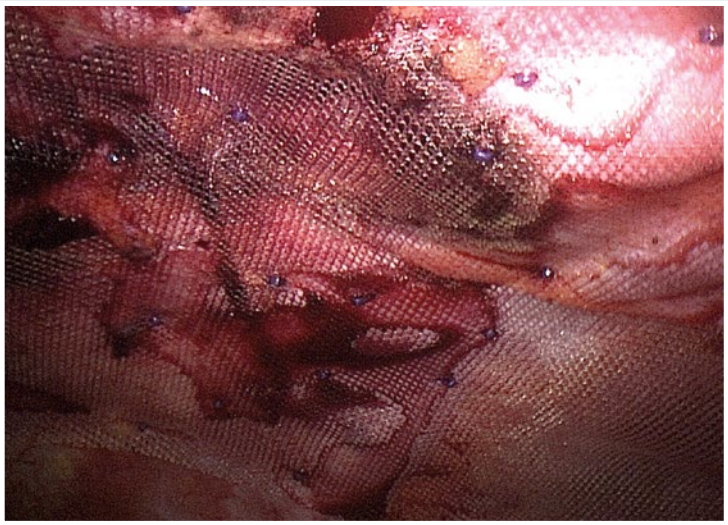
The IEHS guidelines permit the use of TiMESH/TiLENE® for laparoscopic treatment of ventral and incisional hernias due to the titanisation.[11]

Fibroblasts quickly grow through the mesh, resulting in neoperitonealisation.[3]

Additional adhesion prophylaxis (e.g. collagen coating) is not necessary.[11,12] Compared to other IPOM meshes, both surfaces of the mesh implant are the same, hence simplifying the application.

Easy-IPOM advantages

- The mesh implant does not require preparation (e.g. moistening)
- No confusion between the peritoneal and visceral mesh surface
- Smooth trocar insertion
- All fixation systems can be used
- Excellent peritoneal ingrowth



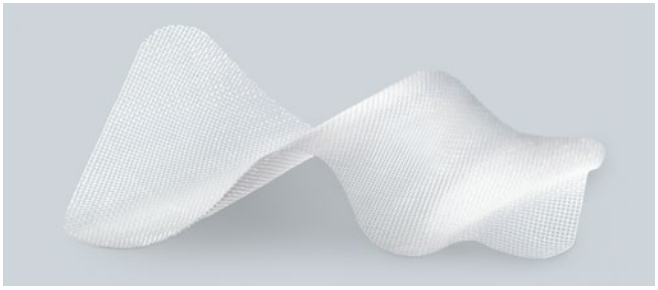
Easy peritoneal application
TiMESH strong (65 g/m²) during IPOM surgery (with the kind permission of Professor Dr. Ferdinand Köckerling, Vivantes Klinikum Spandau, Berlin, Germany)

* excl. TiMESH 16 g/m²

TiMESH

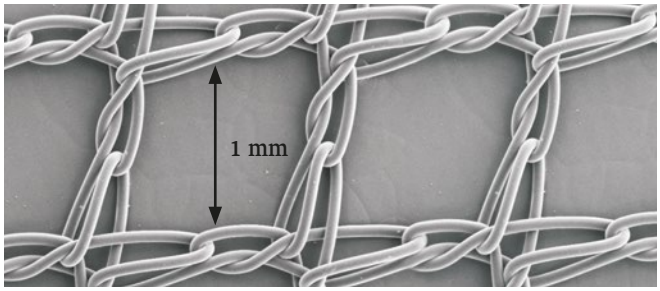
Indicated for use in hernia surgery for all types of hernias and surgical techniques incl. IPOM*.

View



TiMESH

Detail



1 mm pore, macroporous

Benefits

Standardisation

TiMESH is suitable for all intra- and extraperitoneal hernias and surgical techniques incl. IPOM*. Only a few mesh variants suffice to cover all needs of hernia surgery.

Time and cost savings

The hydrophilic surface of TiMESH facilitates the handling during laparoscopic surgery. Furthermore, certain indications do not require fixation.[13,14] Consequently, the entire procedure becomes more time and cost efficient.

Different weights according to need

TiMESH is available in a variety of weights. The material of TiMESH extralight (16 g/m²) is ideally suited for the treatment of inguinal hernias. The mesh weight of TiMESH light (35 g/m²) allows it to be applied universally to all types of hernias using any surgical technique. TiMESH strong (65 g/m²) can be selected as required for pronounced hernia defects.

Order information

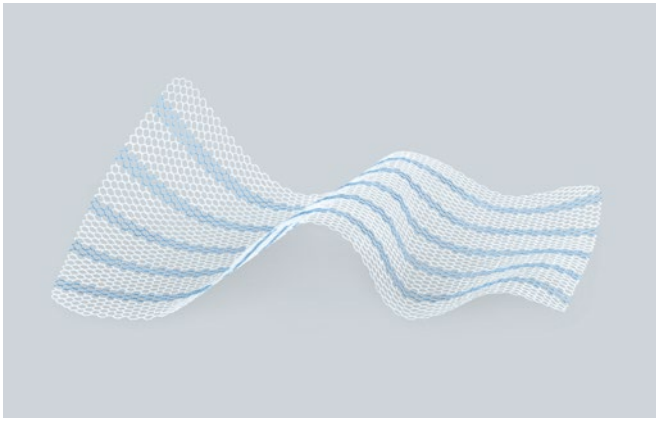
Indication	Product name	Mesh blank	Size (L x W/cm)	Weight	REF
All hernia types including IPOM*	TiMESH		10 x 15	16 g/m²	6000004
			15 x 12.5	16 g/m²	6000918
			15 x 15	16 g/m²	6000029
			6 x 9	35 g/m²	6000683
			6 x 11	35 g/m²	6000682
			10 x 15	35 g/m²	6000001
			15 x 15	35 g/m²	6000030
			20 x 15	35 g/m²	6000016
			20 x 25	35 g/m²	6000744
			20 x 30	35 g/m²	6000948
			25 x 10	35 g/m²	6000718
			30 x 30	35 g/m²	6000073
			10 x 15	65 g/m²	6000470
			15 x 15	65 g/m²	6000471
			20 x 15	65 g/m²	6000425
			30 x 30	65 g/m²	6000426

* excl. TiMESH 16 g/m²

TiLENE® Blue

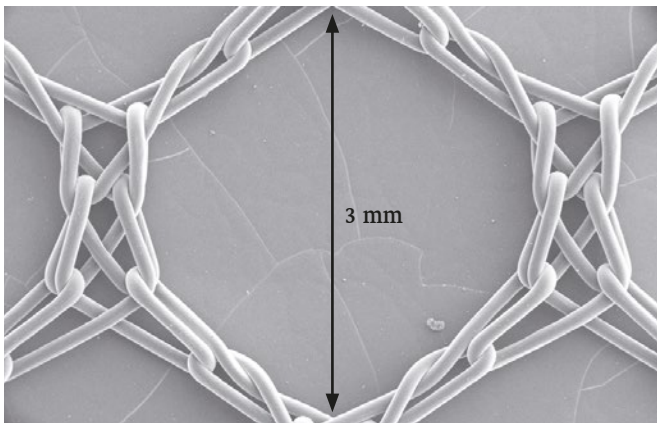
Indicated for use in hernia surgery for all types of hernias and surgical techniques incl. IPOM.

View



TiLENE® Blue

Detail



3 mm pore, macroporous

Benefits

Standardisation

TiLENE® Blue is suitable for all intra- and extraperitoneal hernias and surgical techniques incl. IPOM. Only a few mesh variants suffice to cover all needs of hernia surgery.

Time and cost savings

The hydrophilic surface of TiLENE® Blue facilitates the handling during laparoscopic surgery. Furthermore, certain indications do not require fixation.[13,14] Consequently, the entire procedure becomes more time and cost efficient.

Easier alignment of the mesh

The blue orientation stripes facilitate the alignment of the mesh implant.

Order information

Indication	Product name	Mesh blank	Size (L x W/cm)	Weight	REF
All hernia types including IPOM*	TiLENE® Blue		10 x 15	24 g/m²	6000950
			15 x 15	24 g/m²	6000951
			20 x 15	24 g/m²	6000952
			30 x 30	24 g/m²	6000953

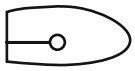
TiLENE® Inguinal

TiLENE® Inguinal can be used with the Lichtenstein technique for inguinal hernia repair.

TiLENE® Inguinal-R (right-sided hernia) and TiLENE® Inguinal-L (left-sided hernia) constitute multi-layer mesh implants for the laparoscopic treatment of inguinal hernias.

The pore size is 1 mm.

Order information

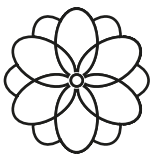
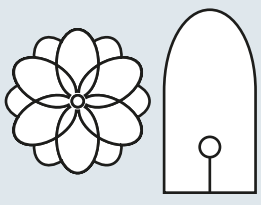
Indication	Product name	Mesh blank	Size (L x W/cm)	Weight	REF
Inguinal hernias	TiLENE® Inguinal		10 x 4.7	65 g/m²	6000648
			11 x 5.7	35 g/m²	6000954
	TiLENE® Inguinal-R		15 x 12 (basic mesh) 6 x 7.5 (flap)	35 g/m² 16 g/m²	6000643
	TiLENE® Inguinal-L		15 x 12 (basic mesh) 6 x 7.5 (flap)	35 g/m² 16 g/m²	6000644

TiLENE® Plug

TiLENE® Plug is a self-forming plug with three layers of fabric and is used in inguinal hernia repair. The plug is pushed through the internal ring, deep into the preperitoneal space.
The TiLENE® Onlay Patch is placed on the anterior surface of the posterior wall of the inguinal canal. The opening is placed around the spermatic duct in order to repair an additional existing direct hernia and/or to provide strengthening.

The pore size is 1 mm.

Order information

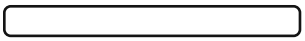
Indication	Product name	Mesh blank	Size (L x W/cm)	Weight	REF
Inguinal hernias	TiLENE® Plug		Small (Ø 5)	35/65 g/m²	6000529
			Medium (Ø 7)	35/65 g/m²	6000530
			Large (Ø 9)	35/65 g/m²	6000531
	TiLENE® Plug Set		Medium (Ø 7) 4.5 x 9 (patch)	35/65 g/m² 35 g/m²	6000611

TiLENE® Strip

TiLENE® Strip serves to prevent incisional hernias, e.g. during fascial closure following laparotomy. It can be applied using either the onlay or the sublay technique.

The pore size is 1 mm.

Order information

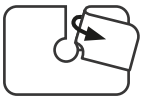
Indication	Product name	Mesh blank	Size (L x W/cm)	Weight	REF
Preventive use	TiLENE® Strip		6 x 40	35 g/m²	6000534
			8 x 40	35 g/m²	6000536
			10 x 40	35 g/m²	6000538

TiLENE® Guard

TiLENE® Guard meshes are multi-layered and serve to prevent and treat parastomal hernias. They are suitable for laparoscopic and open repair procedures. The TiLENE® Guard Set also includes a patch to cover the stoma centrally using the sandwich technique.

The pore size is 1 mm.

Order information

Indication	Product name	Mesh blank	Size (L x W/cm)	Weight	REF
Parastomal hernias/ Preventive use	TiLENE® Guard		14 x 14	35 g/m²	6000605
			20 x 14	35 g/m²	6000607
	TiLENE® Guard Set		14 x 14 10 x 15 (patch)	35 g/m² 35 g/m²	6000525
			20 x 14 10 x 15 (patch)	35 g/m² 35 g/m²	6000527

TiSURE®

The multi-layered mesh TiSURE® serves to reinforce the diaphragm in the event of existing defects at the opening through which the oesophagus passes.

The pore size is 1 mm.

Order information

Indication	Product name	Mesh blank	Size (L x W/cm)	Weight	REF
Hiatal hernias	TiSURE®		7 x 10	35 g/m²	6000438

Literature

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Video

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Workshops

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Contact

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