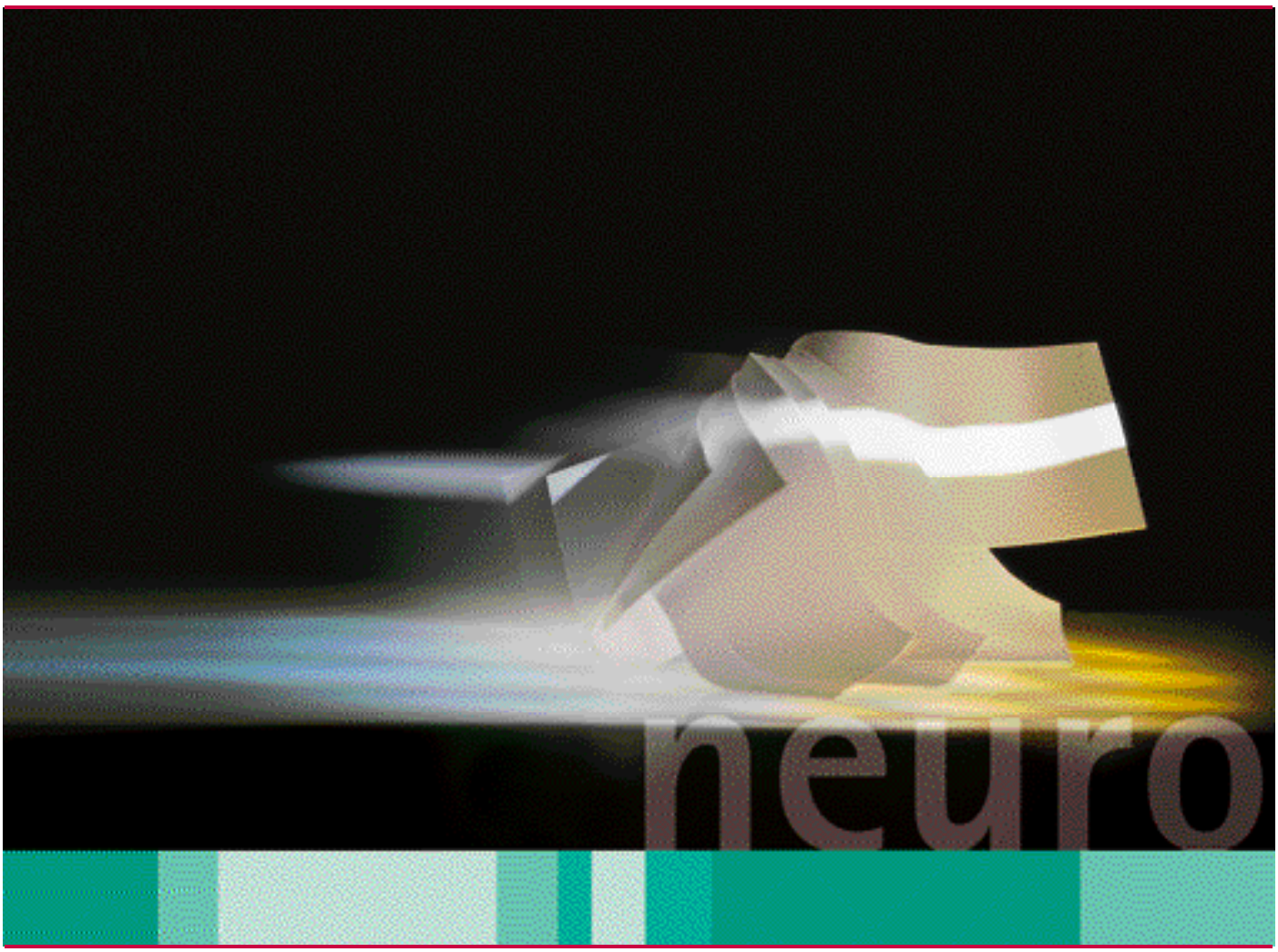
B. Braun Closure Specialities

Neurosurgery

Complete range for dura substitution

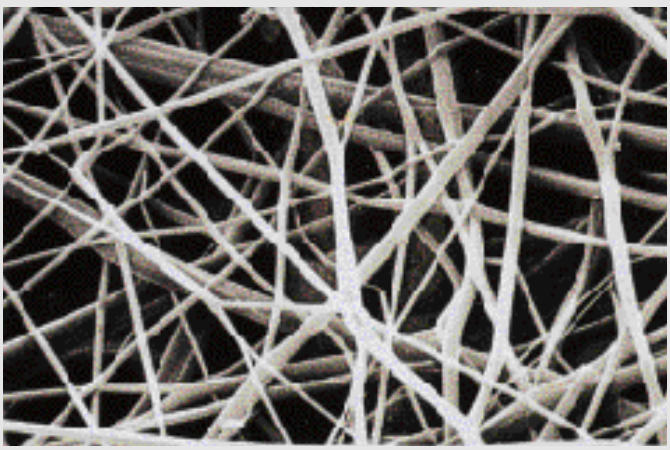


Product range for cranial and spinal procedures

B|BRAUN
SHARING EXPERTISE

Neuro-Patch®

Synthetic dura substitution, non-absorbable



Neuro-Patch® is a type of microporous fabric manufactured from a highly purified polyester-urethane.

A technologically advanced, electronically controlled procedure has been developed for producing Neuro-Patch®, in which a dissolved polyesterurethane polymer is sprayed from specialised jets. This produces fibres which are captured at defined angles, producing a fleece-like structure.

The fine fibred microstructure supports the rapid infiltration of connective tissue cells.

Compatibility, Biostability and Incorporation

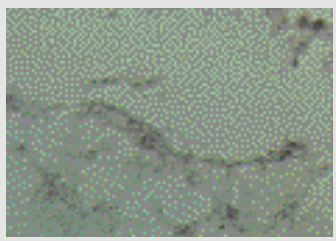
Animal experiments and clinical studies have confirmed that Neuro-Patch® is extremely well tolerated by tissue. No adverse humoral or cellular immunological reactions are seen.

The absolute biostability of Neuro-Patch® has been documented by histological studies and by the results of physical strength and dry weight measurements (showing no material loss even after implantation für many years).

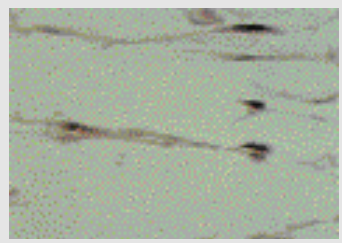
Neuro-Patch® cannot be degraded within the body either enzymatically or by direct cellular activity.

Neuro-Patch® is incorporated within three months. After implantation a delicate neomembrane developes and adheres closely to the microporous surface of the patch. One to three days following implantation, cells from the surrounding connective tissue (mainly fibroblasts with a few histiocytes) migrate into the pores of the implant, which produce collagen fibers. Finally Neuro-Patch® is firmly fixed to the surrounded native dura mater by newly formed dense collagen bundles.

Adhesions with the surface of the brain related to the implant have not been observed.

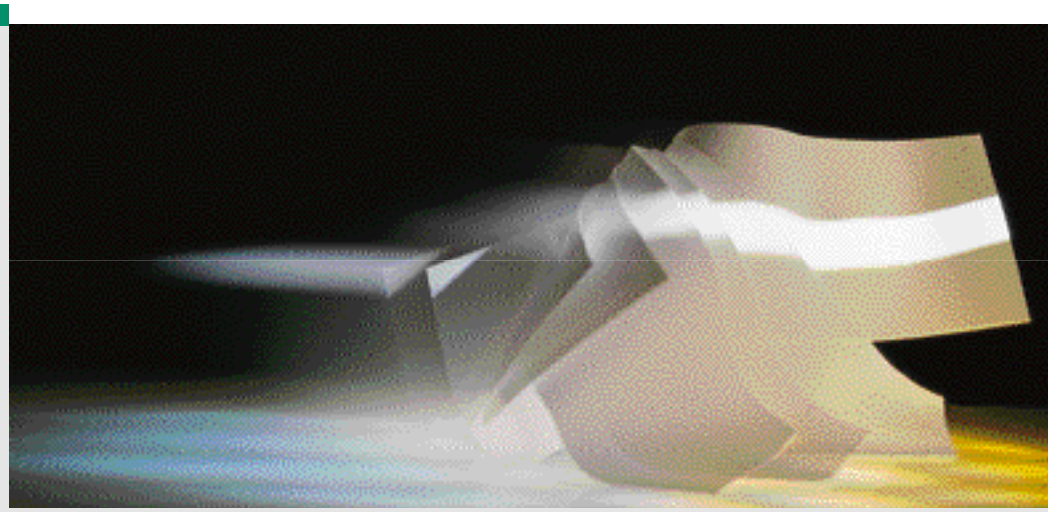


After implantation, the pores of Neuro-Patch® are initially plugged with low-protein exsudate, preventing fluid leakage (400 x).



After 2 months, the pores of Neuro-Patch® are populated by fibroblasts. (250 x)

After 18 months, all pores are filled with a dense network of collagen fibres. (polarised light, 135 x)



Advantages

- fluid-tight to prevent CSF leakage
- microporous structure hence rapid population with endogenous fibroblasts
- well tolerated by tissue
- biostability and permanent tensile strength

Optimum handling properties, e.g.:

- impressive elasticity and flexibility
- modelling qualities
- very easy to suture
- no suture pull-out
- can be cut to any size desired

Mode of application

To achieve tension-free embedding, Neuro-Patch® should be cut as closely as possible to the defect size.

Neuro-Patch® should be fixed with non-absorbable suture material (polyester, polypropylene). Additionally, it may be secured with fibrin glue. Atraumatic round-bodied needles allow suturing without significant damage to the implant.

Indications

Neuro-Patch® is used as a dura substitute in any intracranial and intraspinal dura substitution procedures.

Contraindications

Neuro-Patch® should not be used:

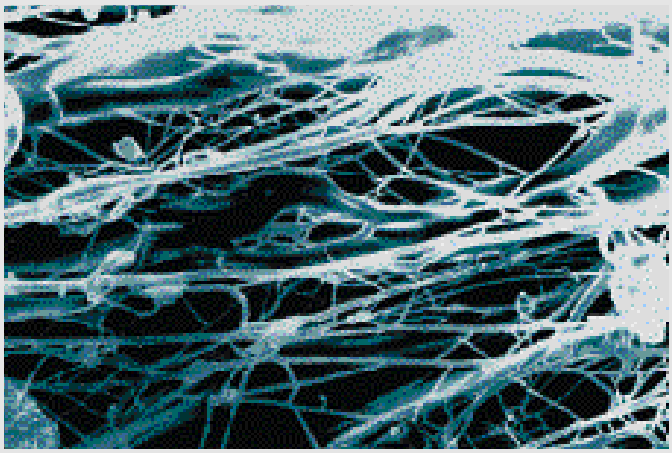
- in open cranial trauma
- in open spina bifida
- in infected areas

Please note

Neuro-Patch® should not be used together with bone cement as the patch material could be damaged depending on the application.

Lyoplant®

Biological dura substitution, absorbable



Lyoplant® is a pure collagen implant that is produced from bovine pericardium. This collagen is a Type I collagen and is known for its low propensity to cause immunological reactions.

The special and comprehensive manufacturing process eliminates all non-collagenous substances such as fats, enzymes and other non-collagenous proteins.

Controlled lyophilisation (freeze drying) process ensures that the loose fibre structure of Lyoplant® is preserved to offer the optimum conditions for integration after implantation.

Compatibility, Infection Security and Incorporation

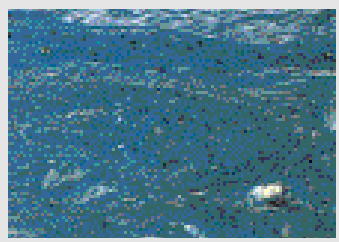
Improved extensive manufacturing processes have resulted in a product consisting of pure collagen which in comparison with other collagen products for dura substitution has superior tissue compatibility.

Lyoplant® is produced from bovine pericardium. In order to avoid the risk of transmission of Slow Viruse Deseases (e.g. bovine spongiform encephalopathy) the following measures are taken:

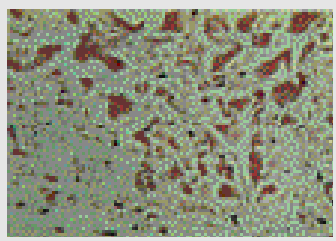
- pericardium is a tissue that is regarded as safe
- New Zealand, the country of origin of the pericardium, is free from BSE
- Lyoplant® is treated with sodium hydroxide solution

The high porosity of the Lyoplant® surface permits rapid inward migration of fibrocytes and good anchorage to the neomembrane with which the body tries to surround the implant.

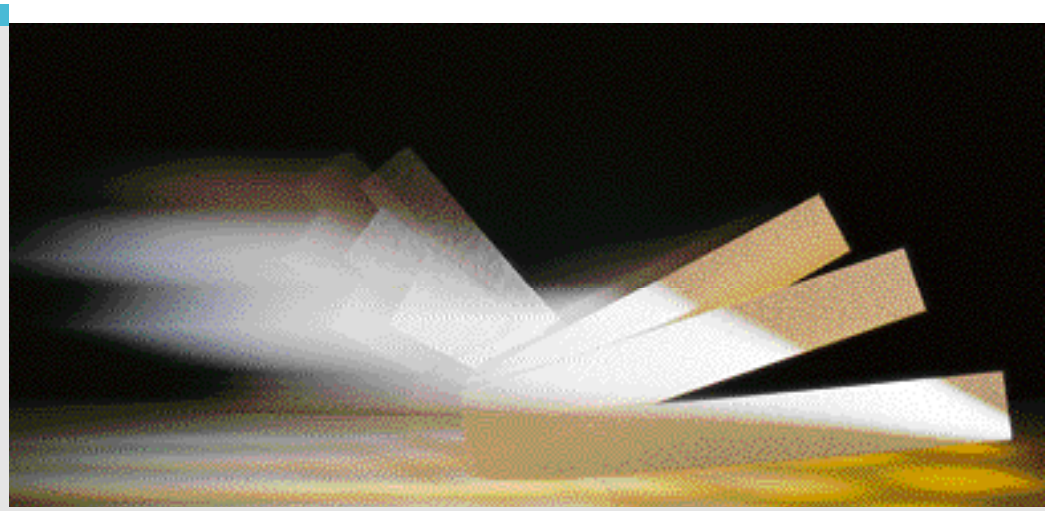
During the next months the immigrated fibrocytes produce new collagen fibres to fix the implant tightly to the surrounded dura. At the same time the Lyoplant® collagen slowly will be degradated by collagenase-proteins.



1 month postoperative (polarized light). Lyoplant® is partly absorbed and replaced by young connective tissue.



7 months postoperative. Lyoplant® is completely vitalised. At the lower border a thin neo-membrane is visible.



Advantages

- fluid-tight to prevent CSF leakage
- microporous structure hence rapid population with endogenous fibroblasts
- well tolerated by tissue
- successive degradation of Lyoplant® collagen

Optimum handling properties, e.g.:

- impressive elasticity and flexibility
- modelling qualities
- very easy to suture
- no suture pull-out
- can be cut to any size desired

Mode of application

1. Rehydration of Lyoplant®
To improve smoothness and flexibility, the Lyoplant® material may be rehydrated prior to implantation (before or after trimming) by soaking the implant material in a sterile physiological saline solution or other isotonic solutions until it is supple and fully compliant.

2. Implantation
To achieve tension-free embedding, Lyoplant® should be cut as closely as possible to the defect size.

Lyoplant® should be fixed with non-absorbable suture material (polyester, polypropylene). Additionally, it may be secured with fibrin glue. Atraumatic round-bodied needles allow suturing without significant damage to the implant.

Indications

Lyoplant® is used as a dura substitute in any intracranial and intraspinal dura substitution procedures.

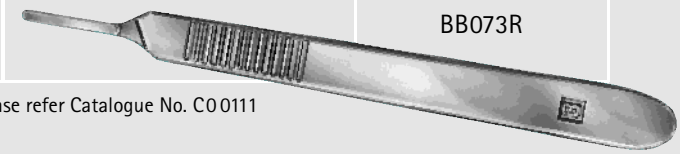
Contraindications

Lyoplant® should not be used:

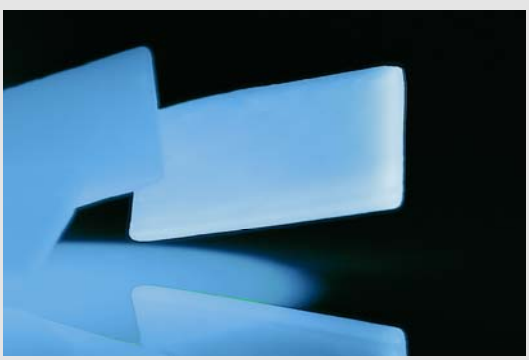
- in infected areas
- in substitution of mechanically stressed connective tissue structures (tendons/ligaments)
- for substitution of parts of the arterial system or the heart walls

Product range for cranial and spinal procedures

Skin incision

Aesculap Scalpel	Figure	Order No.
Surgical Blade, Figure 10		BB510
Scalpel Handle		BB073R

For all available Sizes please refer Catalogue No. C0 0111



Craniotomy

Bone Wax	Content	Order No.
Bone Wax is a sterile mixture of beeswax (70%) and vaseline (30%)	24 pieces	102 9754

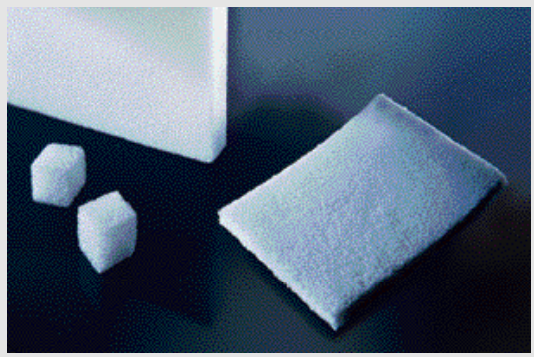
Exposure of the dura mater

Aesculap Blades	Figure	Order No.
Surgical Blade, Figure 11		BB511
Surgical Blade, Figure 15		BB515

For all available Sizes please refer Catalogue No. C0 0111

Haemostasis

Lyostypt®	Sizes	Content	Order No.
Native, absorbable collagen fleece	3 x 5 cm	12 pieces	106 9128
	5 x 8 cm	6 pieces	106 9152
	10 x 12 cm	4 pieces	106 9209

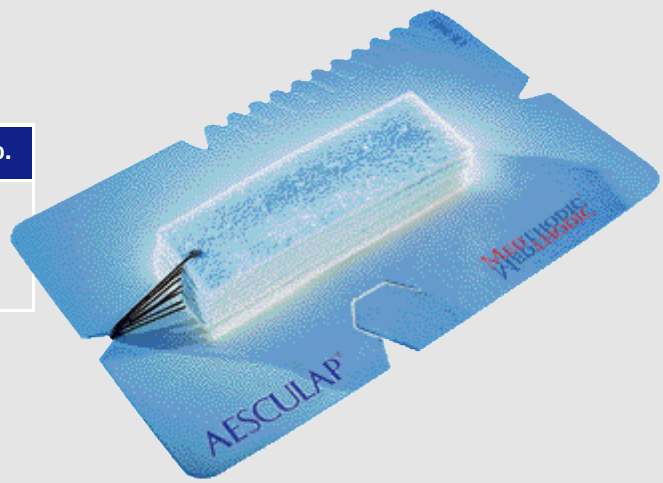


Gelita	Sizes	Content	Order No.
Made of gelatine, completely absorbable	8 x 5 x 1 cm	10 pieces	207 0600
	8 x 2 x 1 cm	10 pieces	207 0707

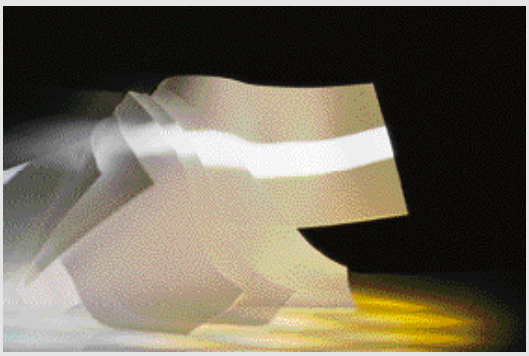
Absorption

Aesculap Neurosorb®	Sizes	Leaflet No.
Neurosurgical patties made of 100% cotton or 100% viscose	Available from micro patties to large sheets	C41902

For all available Sizes please refer Leaflet No. C41902



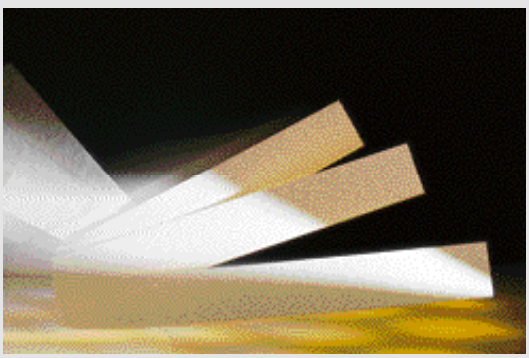
Product range for cranial and spinal procedures



Dura substitution

To cover the dural defect, use the synthetic substitute Neuro-Patch® or the native substitute Lyoplant®.

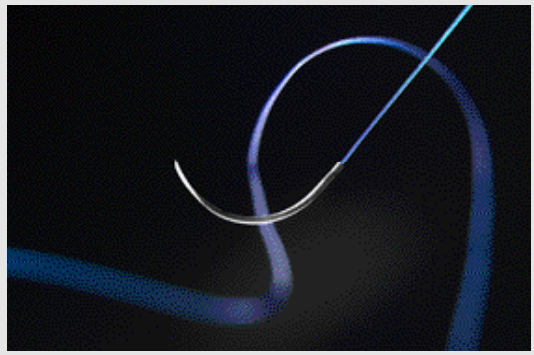
Neuro-Patch®	Sizes	Content	Order No.
Microporous fleece made of highly purified polyester urethane non-absorbable	12 x 14 cm	1 piece	106 4002
	6 x 14 cm	1 piece	106 4010
	6 x 8 cm	1 piece	106 4029
	4 x 10 cm	1 piece	106 4037
	4 x 5 cm	2 pieces	106 4045
	2 x 10 cm	2 pieces	106 4053
	1.5 x 3 cm	2 pieces	106 4061



Lyoplant®	Sizes	Content	Order No.
Pure collagen implant made of bovine pericardium absorbable	6 x 14 cm	1 piece	106 6021
	6 x 8 cm	1 piece	106 6242
	4 x 10 cm	1 piece	106 6048
	4 x 5 cm	1 piece	106 6064
	2 x 10 cm	2 pieces	106 6080
	1.5 x 3 cm	2 pieces	106 6102

Fixation of dura substitution

We recommend fixing Neuro-Patch® or Lyoplant® with Premilene®.



Premilene®	Sizes			Order No.
Non-absorbable monofilament suture made of polypropylene (blue)	USP 5/0	HR 17	75 cm	C009 0012
	USP 4/0	HR 17	75 cm	C009 0013
	USP 3/0	HR 17	75 cm	C009 0014

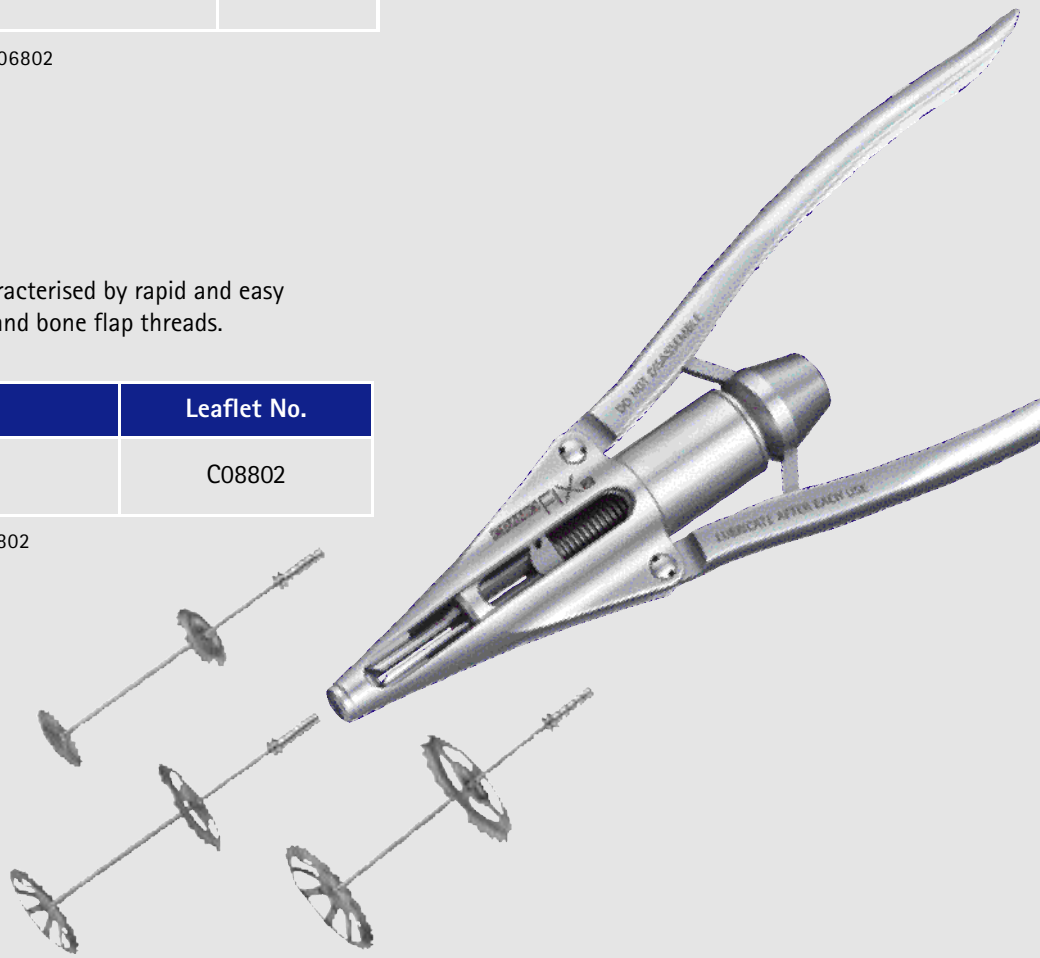
For all available Sutures please refer Catalogue No. B06802

Bone flap fixation

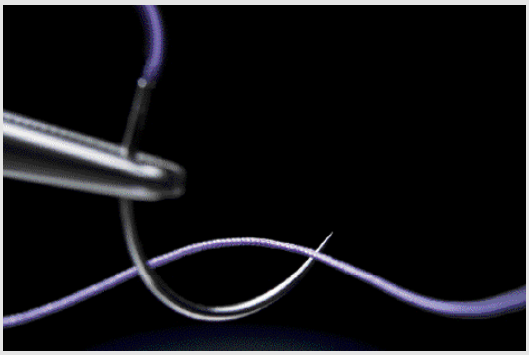
Bone flap fixation using CranioFix2® is characterised by rapid and easy application compared with plates, screws and bone flap threads.

Aesculap CranioFix2®	Leaflet No.
System for bone flap fixation	C08802

For detailed information please refer Leaflet No. C08802



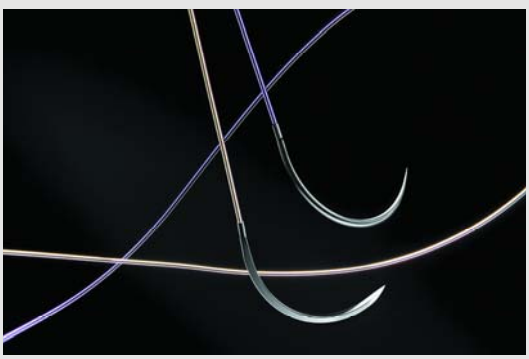
Product range for cranial and spinal procedures



Skin closure

For skin, fascia and muscle closure following sutures of our wide range are recommended.

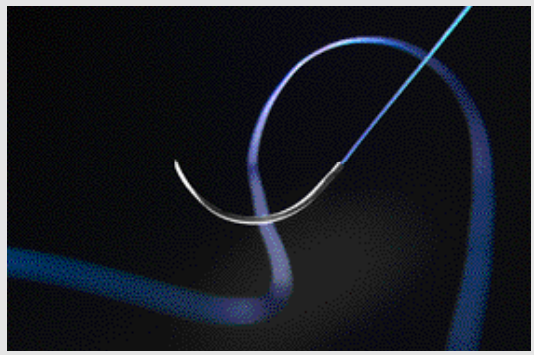
Safil®	Sizes			Order No.
Mid-term absorbable multifilament suture made of polyglycolic acid (violet or undyed)	USP 4/0	DS 19	70 cm	C104 9420
	USP 3/0	DS 24	70 cm	C104 9235
	USP 2/0	DSM 24	45 cm	C104 9657



Monosyn®	Sizes			Order No.
Mid-term absorbable monofilament suture made of glyconate (violet or undyed)	USP 4/0	DS 19	70 cm	C002 3404
	USP 3/0	HS 23	70 cm	C002 3225
	USP 2/0	DS 24	70 cm	C002 3216

For all available Sutures please refer Catalogue No. B 0 6 8 02

Premilene®	Sizes			Order No.
Non-absorbable monofilament suture made of polypropylene (blue)	USP 4/0	DS 19	75 cm	C009 0520
	USP 3/0	DS 24	75 cm	C009 0235
	USP 2/0	DS 24	75 cm	C009 0236



Histoacryl®	Sizes	Order No.
Tissue adhesive	5 ampoules of 0.2 ml	105 0036
	10 ampoules of 0.2 ml	105 0028

AESCULAP®

All it takes to operate.

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