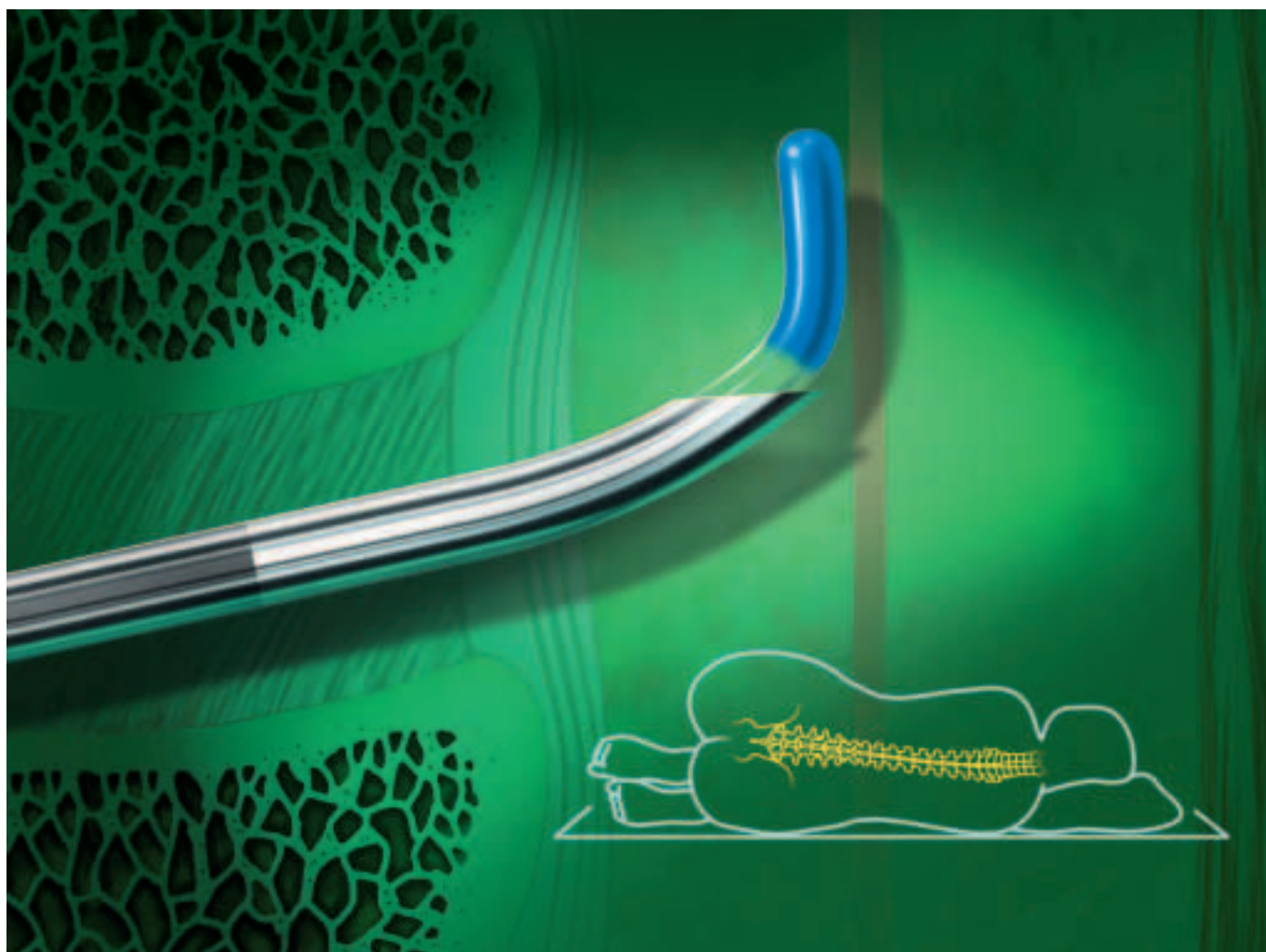


Perifix[®] Epidural Anaesthesia Equipment

Better than Gold Standard



The Full Range of Sets and Individual
Components for Adult and Paediatric Epidural
Anaesthesia/Analgesia.



B | BRAUN

Epidural Anaesthesia/Analgesia

Amongst all regional anaesthesia techniques, epidural anaesthesia remains one of the most commonly performed. Aside from some minor adaptations, both equipment and techniques have remained largely unchanged for the last 30 years. This only serves to demonstrate that during this entire period, the fundamental benefits of the technique have remained sound.

Epidural anaesthesia allows a titrated administration of local anaesthetic, which may enhance its safety and predictability. Although this may delay surgical incision, the main advantages of epidural anaesthesia are the possibility of a segmental spread enabling even unilateral blockade, while avoiding urinary complications and haemodynamic instability. Lacking the positive endpoint one experiences with spinal anaesthesia (i.e. the appearance of cerebrospinal fluid), an epidural may require more skill to obtain a similar success

rate. However, patients who experience both successful spinal and epidural techniques usually prefer the latter approach because of its "smoother" properties with respect to onset of the block and side-effects, while also preserving some "awareness" of the blocked extremities.

With increasing popularity of thoracic and even cervical approaches, greater experience in paediatric anaesthesia, and reports on neurological problems with spinal techniques the development of less toxic compounds such as ropivacaine and levobupivacaine may bring about a reappraisal of epidural anaesthesia for peri- and post-operative anaesthesia/analgesia in the near future.

This, however, does not rule out that safe and high quality Regional Anaesthesia equipment is a prerequisite for a successful procedure.

Marcel P. Vercauteren MD, PhD
Dept. of Anaesthesia
University of Antwerp, Belgium

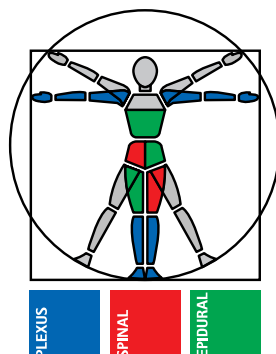
Contents

The B. Braun Range for Epidural Anaesthesia/Analgesia.

Developed and manufactured in strict accordance with the latest requirements of clinical practice:

| | |
|---|-------|
| ■ Perifix® Epidural sets and trays, survey | 3 |
| ■ Perican® Epidural needles, LOR syringes | 4-5 |
| ■ Perifix® Epidural catheters | 6-7 |
| ■ Perifix® Pro-Set (customized sets), Perifix® standard sets | 8-9 |
| ■ Perifix® Paediatric range (epidural and caudal) | 10-11 |
| ■ Perifix® product ordering specification | 12-15 |

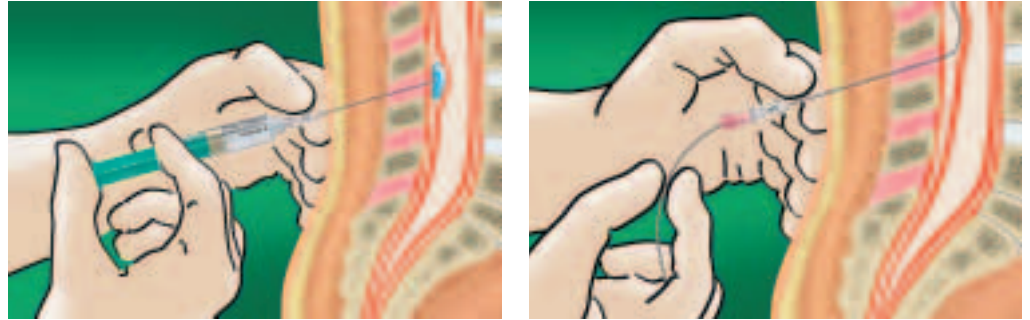
The Art of Regional Anaesthesia



Perifix® Epidural Sets and Trays

A comprehensive selection of sets and trays meeting all common requirements

Identification of the epidural space by LOR and the smooth advancement of the catheter are the most important steps for the epidural technique. Both, Perican® needles and Perifix® catheters are forming the ideal combination for successful epidural anaesthesia - offering consistent tactile "feel" and highly accurate placement.



Perifix®
Custom Designed Trays



Your R. A. tray can be tailored to your individual needs using components from a wide range of products in the B. Braun Pro-Set Programme.

Perifix®
Complete Sets



A standardized complete set comprising all basic components for the epidural procedure.

Perifix®
Filter Sets with LOR



An epidural procedure set consisting of essential components and a plastic LOR syringe.

Perifix®
Filter Sets



An epidural set with essential components.

Perican[®] Epidural Needles Perifix[®] LOR Syringes

Tuohy-type needles
and Loss-of-Resistance (LOR) syringe

Because each patient presents a unique anatomical challenge, precision and versatility are equally important in epidural procedures. With Perican[®] needles you are ensured meticulous construction and reliability.

Clear identification of the epidural space not only requires skill and experience of the anaesthesiologist but also a high precision low-friction Loss-of-Resistance device.

The Perifix[®] LOR syringe is suitable for both, air and saline technique.

Both LOR versions are now available in Latex-free.

NEW: Perifix[®] LOR



New Design

- parabolic markings
3, 6 and 10 ml
- green plunger
- natural coloured piston

Improved plunger movement

- excellent sensitivity
- consistent feel

Available in Luer slip and Luer Lock

- versatile use



The performance of the "Loss-of-Resistance" technique requires a perfect match between the Tuohy epidural needle and the LOR syringe.



Perican[®] Tuohy type epidural needles

The unique Tuohy curve and bevel design

- superior puncture characteristics
- excellent feel and differentiation of tissue layers

High quality of bevel grinding

- consistent tactile "feed-back" in each procedure

Polished inner bevel edge

- minimizes the risk of catheter shearing

Perican[®] needles

Dark 1 cm depth markings

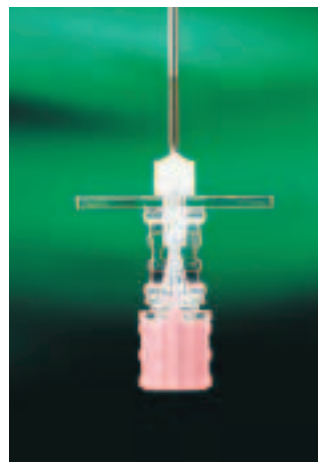
- accurate insertion depth reading

Integrated stable wings

- precise control of needle advancement
- distinct tactile feed back of ligament layers

Transparent hub

- easy visualization of blood or CSF back flow



The perfect team of high precision devices for safe and successful epidural punctures

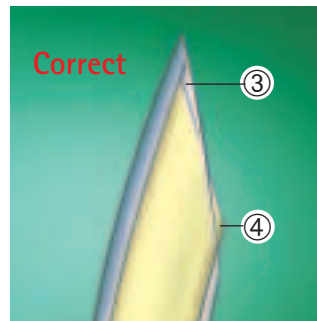
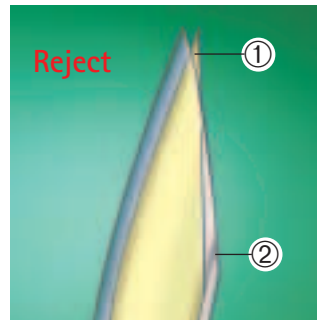
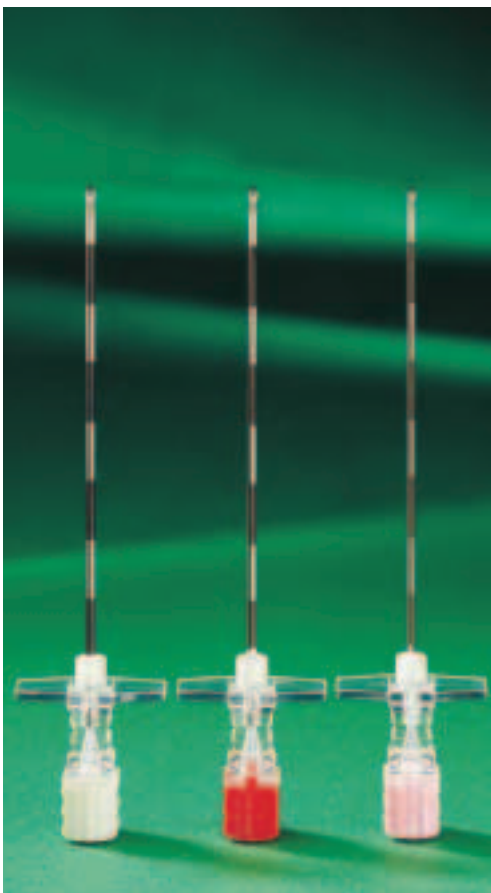


Different views of the Perican® Tuohy bevel, Scale 1:15

Perican® needles sizes:

1.7 mm (16 G),
1.5 mm (17 G),
and
1.3 mm (18 G)
with 80 mm length

For paediatric needles see pages no. 10/11



Perfect stylet fit

Inevitable tolerances in serial production do not allow for a constant flush fit of the stylet.

The formation of a double tip ① and/or a non-protected inner bevel ② would result in higher and uncontrolled penetration force and/or tissue coring.

The Perican® concept avoids double tip and/or unprotected inner bevel by allowing only flush fit and tolerances as shown in ③ and ④.

This prevents tissue coring and displacement of tissue fragments



High precision stylet cutting process

In-process quality control by magnified video screening

■ reliable detection and rejection of products showing any defects.

Only the highest quality in your experienced hands

Perifix® Epidural Catheters

Epidural Catheters in Standard, Soft and Soft Tip Quality

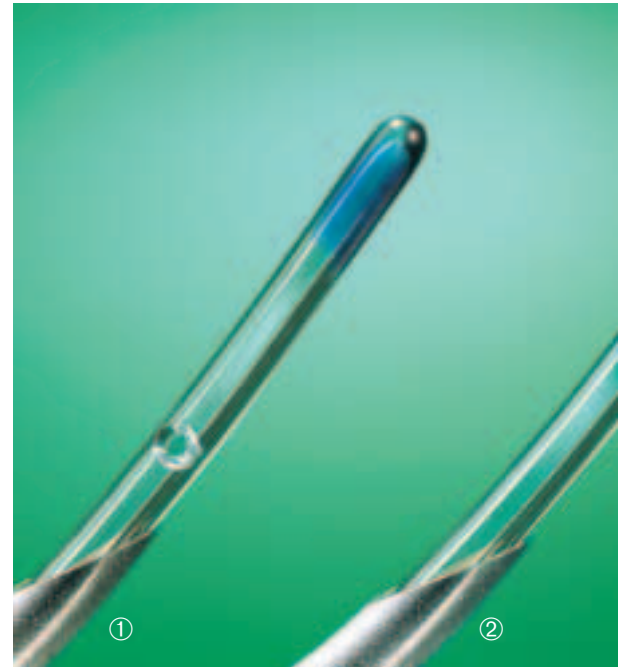
The renowned Perifix® standard catheter quality is made of plasticizer-free polyamide, which is flexible and resists both kinking and stretching, and is easy to place.

An increasing use of epidural catheters for various applications in anaesthesia, analgesia and pain therapy requires specific catheter features and appropriate performance.

Based on the market leading Perifix® standard catheter, B. Braun developed the Perifix® Soft and Perifix® Soft Tip catheters to meet above mentioned anaesthesiologists' needs. Moreover, Perifix® is available in different sizes and tip configurations.

The innovative combination of the new Perifix® 0.2 micron flat filter and the PinPad fixation device offers more comfort to the patient, the anaesthesiologist and the nursing staff.

- ① Closed tip and 3 lateral eyes, available as Perifix® standard or Perifix® Soft
- ② Central opening, available as Perifix® standard or Perifix® Soft
- ③ Highly flexible tip and standard shaft with 3 lateral openings: Perifix® Soft Tip



Threading assist guide

Fits securely into needle hub
 ■ allowing easy advancement of the catheter



NEW:

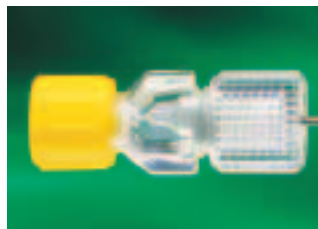
Catheter connector

Latex-free

Transparent housing
 ■ better visibility of the catheter due to transparent bushing

Twist lock action
 ■ attaches catheter quickly and securely

Special inner geometry
 ■ prevents catheter occlusion



Perifix®

The most comprehensive range of epidural catheters

Easy catheter insertion requires a relatively stiff catheter shaft to provide adequate thrust: **Perifix® Standard.**

On the other hand to reduce the risk of complications (intravascular placement, dural puncture and paraesthesia) a softer catheter might be preferred: **Perifix® Soft.**

However a soft catheter is more difficult to be threaded and removed. The ideal epidural catheter is the combination of a stiff but flexible catheter shaft combined with a very soft atraumatic tip: **Perifix® Soft Tip.**

NEW: Perifix® Epidural flat filter

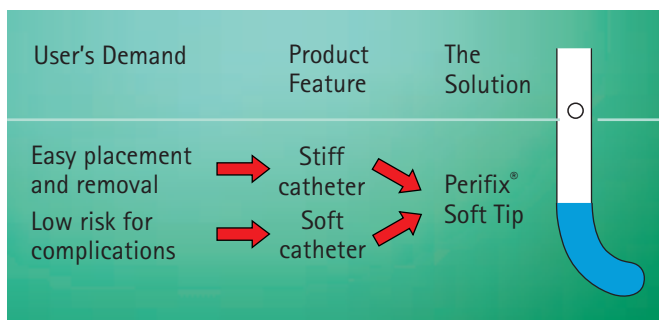
New Design

- higher patient comfort
- Small priming volume
- accurate dosing
- Pressure resistant up to 7 bar
- safety during manual injection

NEW: Perifix® PinPad

Safe and simple filter fixation device

Safety, convenience and flexibility are the hallmarks of B. Braun's Perifix® catheters



The new and unique Perifix® Soft Tip design

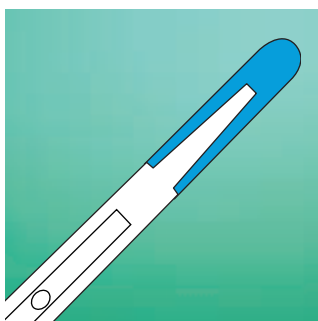
High quality epidural catheters offer high success rates.

Recent discussions revealed a genuine need for a more atraumatic tip design to reduce complications e.g. intra-

vascular placement, dural puncture, and paraesthesia. Thus the goal is to combine the excellent handling characteristics of Perifix® providing easy and safe insertion and removal, with the benefit of a soft and flexible tip.

The logical solution: Perifix® Soft Tip.

Highly flexible and kink-resistant polyamide catheter reduces the risk of catheter occlusion



A common feature of all Perifix® catheters versions is the use of a well proven proprietary medical grade polyamide material providing the following benefits:

- free of plasticizers, implantation tested
- stretch-resistant and high tensile strength
- crystal clear, easy visualisation of blood or CSF
- excellent shaft stability, easy placement no need for any additional metal stylet or coil
- virtually no risk of forming a loop or knot
- within a few hours the catheters softens by about 40% due to water absorption of the polyamide material

Perifix® Soft Tip: What's so special?

Stiff and flexible catheter shaft

- easy placement and removal

Soft and flexible tip

- reduced risk of complications

Special "high-tech" welding process and large anchoring area

- reliable bond of the soft tip
- no risk of tip separation
- smooth transition between shaft and soft tip

Perifix® meet individual requirements and preferences

Perifix® Sets and Trays

A comprehensive range of standardized sets and custom designed trays

Pro-Set: The largest variety of options and advantages

The increased use of epidural anaesthesia and analgesia for a variety of procedures led to hospital specific protocols often requiring custom made equipment sets. In order to meet your individual requirements and personal preferences as well as to save time, money, and packaging waste, B. Braun offers a full line of standard sets and the Pro-Set service for custom designed trays.

Pro-Set stands for unparalleled flexibility in:

- Component selection
- Tray set-up

Customised trays provide the following built-in advantages:

- cost effectiveness – trays only contain the requested components
- save anaesthetic personnel valuable set-up time
- less risk of "mix-ups" and contamination
- allows you to work more comfortably and efficiently making the procedure easier
- perfect match of all components guaranteed
- reduce packaging waste, logistics' cost and work load



Summary

Daily hospital routine:

- Medical procedures often require hospital staff to set up sets from standard equipments and individual components.



Your optimal solution:

- Our Pro-Set team offers their services and expertise. Cost effective Pro-Sets can be tailored to your individual requirements and specifications.

For Pro-Set services:

- Please contact your local B. Braun representative.

Tailored to individual procedures
and techniques

Perifix® Standard Sets: A full range of practice proven standard epidural sets

Based upon years of experience a wide range of standardized Perifix® sets was created. They include essential components to perform safe epidural procedures.



An example of a
custom-designed tray



Perifix® Complete Sets

- Perican® Tuohy needle *
- Perifix® catheter **
- Perifix® Epidural filter (0.2 µm)
- Perifix® PinPad
- Perifix® LOR 10 ml Luer
- Omnifix® 3 part syringes, 2 ml LL, 20 ml LL,
- Sterican®, 3 different sizes

Perifix® Filter Sets with LOR

- Perican® Tuohy needle *
- Perifix® catheter **
- Perifix® Epidural filter (0.2 µm)
- Optional: With Perifix® PinPad
- Perifix® LOR 10 ml Luer

Perifix® Filter Sets

- Perican® Tuohy needle *
- Perifix® catheter **
- Perifix® Epidural filter (0.2 µm)

* Perican® Tuohy needles:
80 mm, 1.3 mm (18 G) or 1.7 mm (16 G)

** Perifix® catheters:
1000 mm, 0.85 x 0.45 mm or 1.05 x 0.60 mm, closed tip 3
lateral openings or central opening, either Perifix® standard,
Perifix® Soft or Perifix® Soft Tip;
with threading assist guide and twist lock connector

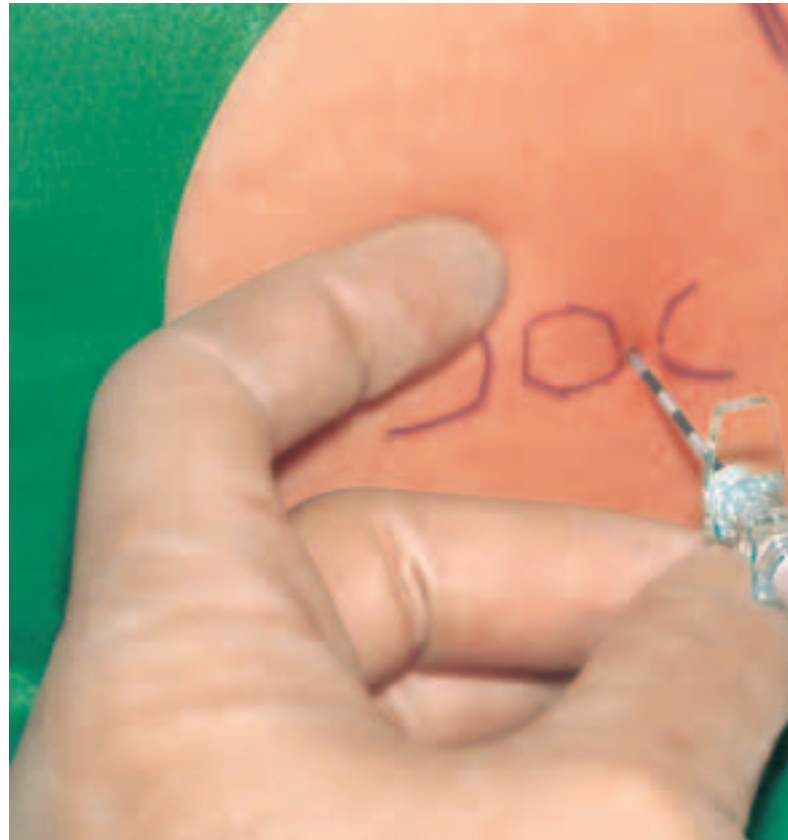
Choice, flexibility and safety

The newly designed paediatric Product Range

Perifix® Paed epidural sets, Perican® Paed Tuohy needles, Epican Paed caudal needles

The most delicate procedures require the most advanced equipment

In children regional techniques are usually combined with light general anaesthesia. Regional blocks provide excellent peri- and postoperative pain relief which is an advantage for all children undergoing surgery. Regional anaesthetic techniques can be successfully used and widely applied in paediatrics, however, specially designed and safe equipment is mandatory for their use in children. In close co-operation with renowned experts in paediatric regional anaesthesia B. Braun developed a practice related product range which meets the up-to-date requirements in the field of epidural, caudal as well as plexus and spinal anaesthesia ranging from single shot needles to continuous catheter sets.



Safe lumbar placement of the Perifix® Paed epidural catheter through the Perican® Paed Tuohy needle.

By courtesy of the Department of Anaesthesiology, Free University, Amsterdam, The Netherlands.

Perican® Paed Tuohy type epidural needles

Three different needle sizes (1.3 mm/18 G, 0.9 mm/20 G, 0.7 mm/22 G)

- appropriate sizes for newborns, infants and school children
- for continuous catheter placement and single shot technique

Special length of 50 mm with 5 mm depth markings

- safe and accurate epidural puncture

Precisely fitting stylets

- no risk of tissue coring, prevents risk of epidermoid tumor development

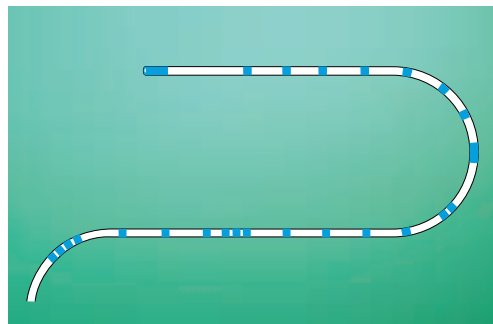
Safety first for the well-being of the child



Perifix® Paed epidural sets

Perifix® Paed epidural sets in 20/24 G for new borns and infants, and 18/20 G for older children:

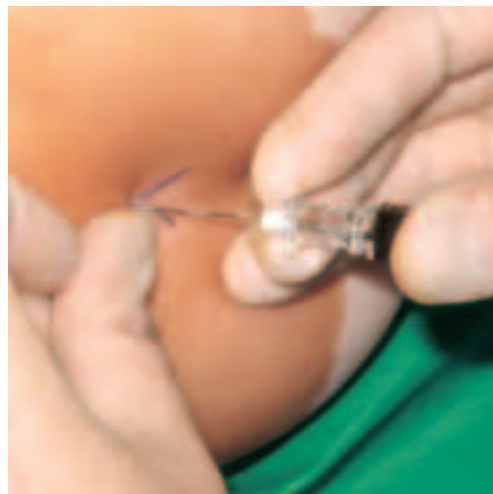
- 0.7 x 50 mm (20 G) needle
- 0.6 x 750 mm (24 G) catheter or
- 1.3 x 50 mm (18 G) needle
- 0.85 x 960 mm (20 G) catheter



Distance markings of paediatric epidural catheters

Practice related distance markings for paediatric use, 10 mm intervals starting from 20 mm to 200 mm from the tip

- for safe catheter insertion and position control
- markings following the same pattern as on adult catheters for reliable orientation



Epican® Paed caudal needles

Precisely fitting stylets

- no tissue coring - prevents risk of epidermoid tumor development

Caudal procedure with Epican Paed 0.7 x 35 mm (22 G).

By courtesy of the Department of Anaesthesiology, Free University, Amsterdam, The Netherlands.

Epican® Paed caudal needles

Special lengths of 50 mm, 35 mm, and 30 mm with 5 mm depth markings







- safe and accurate caudal puncture

Three different needle sizes (0.9 mm / 20 G, 0.7 mm / 22 G, 0.5 mm / 25 G)

- appropriate sizes for new-borns, infants and school children

The comprehensive product range in respect of indication, age and condition of the child

Perifix® Product Ordering Specifications

| | | | | | |
|---|---|---|---|---|---|
|  |  |  |  |  |  |
| Tuohy Epidural needle 1.3 × 80 mm (18 G) Colour Code: pink | Tuohy Epidural needle 1.7 × 80 mm (16 G) Colour Code: white | Epidural Catheter with 3 lateral openings 0.85 × 0.45 × 1000 mm | Epidural Catheter with 3 lateral openings 1.05 × 0.6 × 1000 mm | Epidural Catheter with central opening 0.85 × 0.45 × 1000 mm | Epidural Catheter with central opening 1.05 × 0.6 × 1000 mm |

Complete Sets

| | | | | | |
|----------------------------|---|---|---|---|---|
| Perifix® Standard Catheter | | | | | |
| Perifix® 420 | • | | • | | |
| Perifix® 430 | | • | | • | |
| Perifix® 620 | • | | | | • |
| Perifix® 421 | • | | • | | |
| Perifix® 431 | | • | | • | |
| Perifix® Soft Catheter | | | | | |
| Perifix® 520 | • | | • | | |
| Perifix® 530 | | • | | • | |
| Perifix® Soft Tip Catheter | | | | | |
| Perifix® 900 | • | | • | | |
| Perifix® 901 | • | | • | | |

Filter Sets

| | | | | | |
|----------------------------|---|---|---|---|--|
| Perifix® Standard Catheter | | | | | |
| Perifix® 400 | • | | • | | |
| Perifix® 450 | • | | • | | |
| Perifix® 405 | | • | | • | |
| Perifix® 401 | • | | • | | |
| Perifix® 451 | • | | • | | |
| Perifix® 402 | | • | | • | |
| Perifix® Soft Catheter | | | | | |
| Perifix® 500 | • | | • | | |
| Perifix® 505 | | • | | • | |
| Perifix® 501 | • | | • | | |
| Perifix® 502 | | • | | • | |
| Perifix® Soft Tip Catheter | | | | | |
| Perifix® 700 | • | | • | | |
| Perifix® 701 | • | | • | | |
| Perifix® 750 | • | | • | | |

NEW:

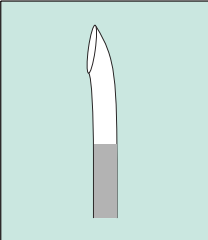
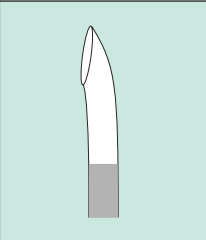
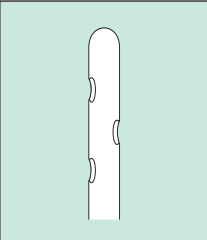
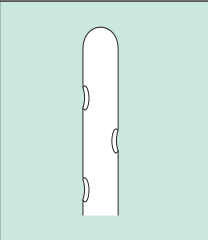
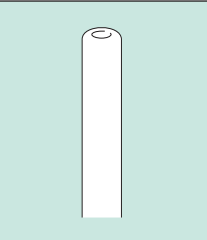
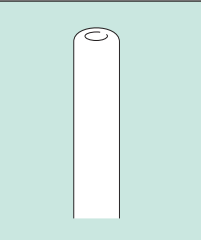
NEW:

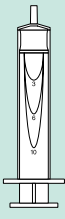





NEW:

NEW:

|  |  |  |  |  |  | Code-No. | Sales unit |
|--|---|--|---|--|---|----------|------------|
| <p>Loss of Resistance Device (LOR) 10 ml Luer Slip</p> <p></p> | <p>Omnifix® three part syringes 2 ml, 20 ml Luer Lock *3 hypodermic needles see next page</p> | <p>Omnifix® three part-syringes 2 ml, 10 ml, 20 ml Luer Lock *3 hypodermic needles see next page</p> | <p>Perifix® Epidural flat filter 0.2 µm pressure resistant up to 7 bar</p> | <p>Perifix® PinPad Filter fixation device</p> | <p>Perifix® Screw connector</p> | | |
| | | • | • | • | • | 451 4203 | 10 |
| | | • | • | • | • | 451 4300 | 10 |
| | | • | • | • | • | 451 6206 | 10 |
| • | • | | • | • | • | 451 4211 | 10 |
| • | • | | • | • | • | 451 4319 | 10 |
| | | • | • | • | • | 451 5200 | 10 |
| | | • | • | • | • | 451 5307 | 10 |
| | | • | • | • | • | 451 0291 | 10 |
| • | • | | • | • | • | 451 0305 | 10 |
| | | | • | | • | 451 4009 | 20 |
| | | | • | • | • | 451 4505 | 20 |
| | | | • | | • | 451 4050 | 20 |
| • | | | • | | • | 451 4017 | 20 |
| • | | | • | • | • | 451 4513 | 20 |
| • | | | • | | • | 451 4025 | 20 |
| | | | • | | • | 451 5005 | 20 |
| | | | • | | • | 451 5056 | 20 |
| • | | | • | | • | 451 5013 | 20 |
| • | | | • | | • | 451 5021 | 20 |
| | | | • | | • | 451 0216 | 20 |
| • | | | • | | • | 451 0097 | 20 |
| • | | | • | • | • | 451 7504 | 20 |

Perifix® Product Ordering Specifications

| |  |  |  |  |  |  |
|-----------------------------------|---|---|---|--|---|---|
| Mini Sets | Tuohy Epidural Needle 1.3 × 80 mm (18 G) Colour Code: pink | Tuohy Epidural Needle 1.7 × 80 mm (16 G) Colour Code: white | Epidural Catheter with 3 lateral openings 0.85 × 0.45 × 1000 mm | Epidural Catheter with 3 lateral eyes 1.05 × 0.6 × 1000 mm | Epidural Catheter with central opening 0.85 × 0.45 × 1000 mm | Epidural Catheter with central opening 1.05 × 0.6 × 1000 mm |
| Perifix® Standard Catheter | | | | | | |
| Perifix® 300 | • | | • | | | |
| Perifix® 310 | | • | | • | | |
| Perifix® 100 | • | | | | • | |
| Perifix® 110 | | • | | | | • |
| Perifix® 301 | • | | • | | | |
| Perifix® 302 | | • | | • | | |
| Perifix® Soft Tip Catheter | | | | | | |
| Perifix® 800 | • | | • | | | |
| | 0.9 x 50 mm (20 G) Colour Code: yellow | 1.3 x 50 mm (18 G) Colour Code: pink | | | 0.6 x 0.35 x 750 mm | 0.85 x 0.45 x 960 mm |
| Paediatric Filter Sets | | | | | | |
| Perifix® Soft Catheter | | | | | | |
| Perifix® Paed 18 | | • | | | | • |
| Perifix® Paed 20 | • | | | | • | |

| NEW: | | | NEW: | NEW: | NEW: | | |
|--|---|---|---|--|---|----------|------------|
|  |  |  |  |  |  | Code-No. | Sales unit |
| Loss of Resistance Device (LOR) 10 ml Luer Slip <i>Latex-free</i> | Omnifix® three part syringes 2 ml, 20 ml Luer Lock *3 hypodermic needles | Omnifix® three part syringes 2 ml, 10 ml, 20 ml Luer Lock *3 hypodermic needles | Perifix® Epidural flat filter 0.2 µm pressure resistant up to 7 bar | Perifix® PinPad Filter fixation device | Perifix® Screw connector | | |
| | | | | | • | 451 3002 | 20 |
| | | | | | • | 451 3100 | 20 |
| | | | | | • | 451 1000 | 20 |
| | | | | | • | 451 1107 | 20 |
| • | | | | | • | 451 3010 | 20 |
| • | | | | | • | 451 3029 | 20 |
| | | | | | | | |
| | | | | | • | 451 0224 | 20 |
| | | | | | | | |
| | | | | | | | |
| • | | | • | • | • | 451 2006 | 20 |
| • | | | • | • | • | 451 2014 | 20 |

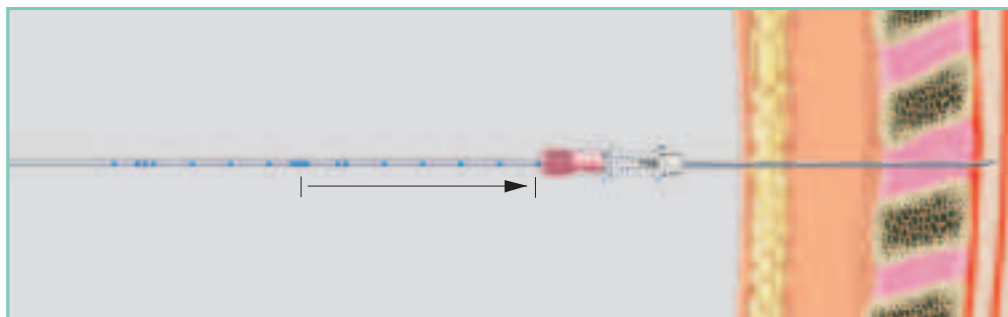
* Hypodermic needles sizes

| ø mm | Needle Length/mm | G | Needle Length/ins | Colour code |
|------|------------------|----|-------------------|-------------|
| 0.5 | 16 | 25 | 5/8" | orange |
| 0.8 | 40 | 21 | 1 1/2" | green |
| 1.2 | 40 | 18 | 1 1/2" | pink |

For detailed information on individual components and ordering specifications please refer to the official Hospital Care catalogue

Epidural Catheter Insertion and Control

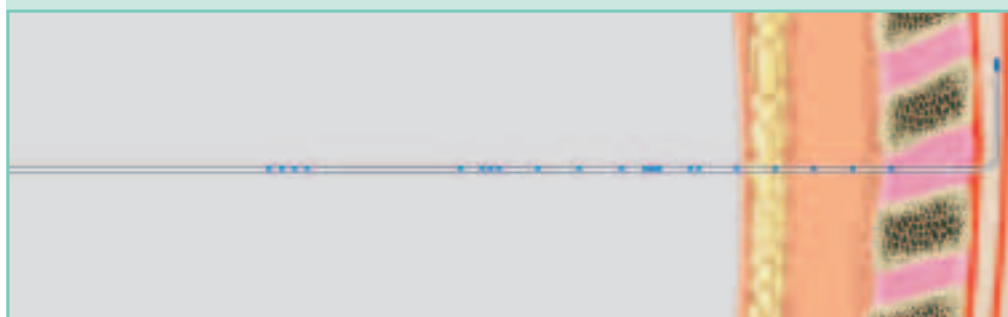
B. Braun service for education and clinical practice



The catheter tip exits the epidural needle tip when the wide blue marking (11 cm from distal hole) enters the threading assist guide



Further advancement of the catheter into the epidural space up to 5 cm (max. up to 16 cm marking) insertion length shown is 3 cm (14 cm marking).



Final position of the catheter after removal of the epidural needle. Marking at skin level = 9 cm inside the body.

Calculation of the catheter length placed in the epidural space

| | | | |
|---|---------------|---|----------------------|
| • Effective length of the epidural needle | 8 cm | • Total length inside the body | 9 cm |
| • Extracorporal needle length | <u>- 2 cm</u> | • Distance from skin level to epidural space (=insertion of the needle) | <u>- 6 cm</u> |
| • Depth of needle insertion | = 6 cm | Catheter length in epidural space | <u><u>= 3 cm</u></u> |

This illustration is separately available

B | BRAUN
HOSPITAL CARE

B. Braun Melsungen AG
P. O. Box 11 20
D-34209 Melsungen

Tel +49 (56 61) 71-0
Fax +49 (56 61) 71-2777
www.bbraun.com