ANAESTHESIA CATALOGUE

Find our range
of products on
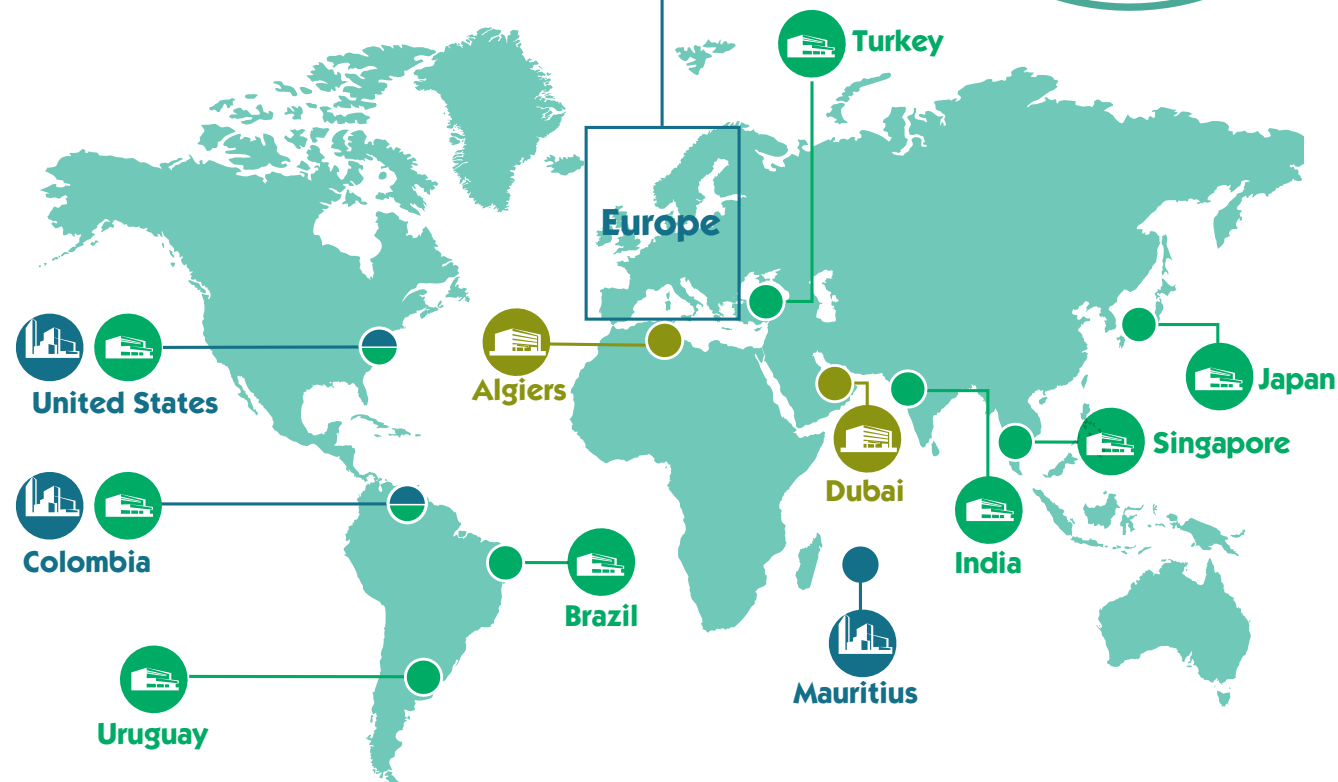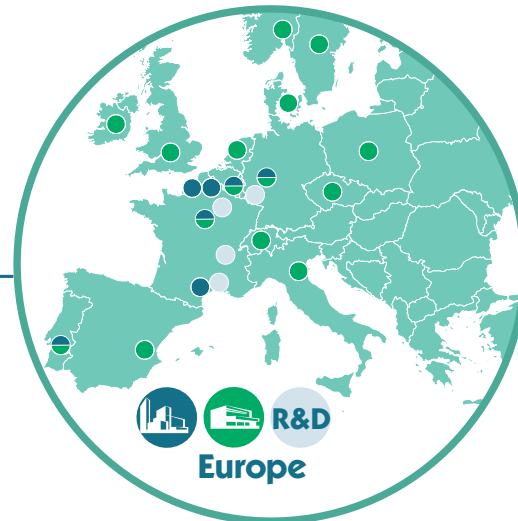www.vygon.com

VYGON

Value Life

Vygon in the world

OUR STORY

Pierre Simonet founded Vygon in France in 1962. He was one of the first to introduce the concept of disposable medical equipment. Shortly thereafter, the company established subsidiaries in Europe, the United States, India, South America, and more. Today it is present worldwide. Vygon also relies on many production units, starting with its first plant in France and continuing on to its latest, brand-new plant that opened in Portugal in 2015.

Belgium	Netherlands
Czech Republic	Norway
Denmark	Poland
Finland	Portugal
France	Spain
Germany	Sweden
Ireland	Switzerland
Italy	United Kingdom

R&D
Europe

Turkey
Europe
United States
Algiers
Japan
Colombia
Dubai
Singapore
Brazil
India
Uruguay
Mauritius

Subsidiary   Production   Office   R&D Research and Development

Vygon is changing for you

Today the company is present in 100 countries and works for 4,000 clients worldwide. We owe this rapid expansion to all of our clients, both old and new, and to our employees' capacity for innovation. Thanks to their commitment, we are able to offer the products and devices that healthcare professionals expect, and that provide their patients with relief. We are also grateful for all of our employees' positive attitudes, whether they work in our laboratories, in our plants, or in our subsidiaries. Everyone is devoted to their jobs in the service of healthcare.

Today, our development and our results have led us to prioritise an even more efficient approach for project management and to structure our activity in five business units. Since our product range is managed in a decentralised fashion, our staff members are able to concentrate on more specific projects, shorten the innovation cycles, and be more responsive in managing their relations with you.

Retaining the values, vocation, and professional approach that are unique to Vygon, and intensifying our inventive spirit, are the very objectives of this new organisational structure.

Stéphane Regnault
CEO

VYGON
Value Life

Product index

Spinal anaesthesia / lumbar puncture
neura**fit** needles for spinal anaesthesia and lumbar puncture

Our solution for preventing neuraxial wrong route errors.

The ISO standard NRFit™* connectors minimise the risk of medication being delivered to the patient via the wrong route.

The problem
When used for neuraxial and regional anaesthesia, universal Luer connections have led to administration errors, which in some cases has proven fatal.

Problems occurred when intravenous (IV) medicines were administered by the spinal route and vice versa; when anaesthetics were delivered through IV lines.

The solution
It is widely recognised that the use of a non-Luer connection can limit these errors which has generated an increasing need for better connections. The result is the ISO 80369-6 standard named NRFit. In line with these new standards specifying small-bore connectors for neuraxial and regional anaesthesia, Vygon has developed neura**fit**.

NRFit compliant
Benefits of neura**fit,** featuring NRFit standard small-bore connectors:

• Avoids any connection to Luer devices
• A one-piece reversed design, and a smaller diameter, to minimise dead space
• No misconnection.

neura**fit: the advantages**

Made to be sturdy and exceptionally strong from premium-quality steel, neura**fit** is available with two different needle designs to meet specific clinical needs. The device delivers a host of safety benefits and efficiency features.
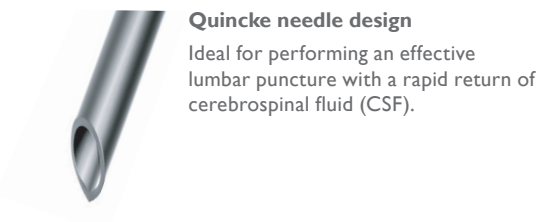
Quincke needle design
Ideal for performing an effective lumbar puncture with a rapid return of cerebrospinal fluid (CSF).
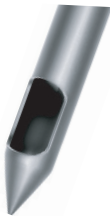
Whitacre pencil point design
Reduces the risk of post spinal headache during intrathecal injection. The shape, size and positioning of the eye ensures optimum needle placement and excellent CSF response time.

*the NRFit brand is the property of GEDSA

Safe
• Easy identification of our neura**fit** range with yellow protectors; the colour associated with NRFit
• Recessed notch indicates the direction of the needle eye plus accurate administration of anaesthetics.

Efficient
• Crystal clear hub has fast CSF flashback visualisation
• Easy to see CSF through magnified hub
• Spinal introducer with precision matched stylet delivers quick and easy one step removal. Plus instant confirmation of needle tip position.

Ease of use
• Available with slip and lock connections
• Familiar connections mean there is no need to change established habits when switching to NRFit devices
• Introducer has an ergonomic hub for easy handling.

neura**fit Whitacre needles**

Code	Colour	Needle		Introducer		Quantity Box/case
		Diameter G	Length mm	Diameter G	Length mm	
181.042AI	●	27	90	22	38	25/1000
181.942A1	●	26	90	20	38	25/1000
181.052A1	●	25	90	20	38	25/1000
181.252A1	●	25	120	20	38	25/700
181.072A1	●	22	90	18	38	25/1000
5181.27A1	●	22	120	-	-	25/700

neura**fit Quincke needles**

Code	Colour	Needle		Introducer		Quantity Box/case
		Diameter G	Length mm	Diameter G	Length mm	
5180.05A1	●	25	90	-	-	25/1000
180.052A1	●	25	90	20	38	25/1000
5183.47A1	●	22	38	-	-	25/1000
5183.97A1	●	22	90	-	-	25/1000
5180.27A1	●	22	120	-	-	25/700
5183.49A1	●	20	38	-	-	25/1000
5183.99A1	●	20	90	-	-	25/1000
5183.92A1	●	18	90	-	-	25/1000

VYGON

Luer needles for spinal anaesthesia and lumbar puncture

Extensive range
- Large range of needle lengths and diameters for spinal anaesthesia and lumbar puncture
- Short needles for paediatrics
- Extra-long needles for obese patients and combined epidural-spinal anaesthesia (from 120 to 185mm)
- Two bevels: Whitacre or Quincke type.

Hub
- Transparent to visualise cerebrospinal fluid reflux (CSF)
- Grooved for a better handling
- Ergonomic design to ensure easy handling.

Stylet
- With lug to indicate the position of the distal eye (Whitacre needle) or bevel orientation (Quincke needle)
- Specially designed to allow rapid reflux of CSF
- Standard colour coding corresponding to the external diameter of the needle
- Can be easily repositioned in the needle, if dural puncture fails
- Adjusted to reduce tissue trauma, and therefore, headaches.

Needle
- Thin walled to obtain rapid CSF reflux.

Pencil Point bevel

Quincke bevel

181 / 5181
Whitacre spinal needle (Luer)

Some variants of the spinal needle are inserted through an introducer with a metal hub. Spinal needles code 181.254 and 181.454 are supplied with Introspin (code 179.756) which is a 68mm long, echogenic and graduated introducer, designed for obese patients.

181.03

181.95

Code	Needle				Introducer		Quantity Box/case
	G	Length mm	Ext. Ø mm	Colour code	Length mm	Ext. Ø mm	
181.07	22	90	0.72	●	Without introducer		20/800
5181.27	22	120	0.72	●	Without introducer		20/480
181.95	24	90	0.55	●	38	0.9	20/800
5181.45	25	38	0.53	●	Without introducer		20/800
181.75	25	75	0.53	●	38	0.9	20/800
181.05	25	90	0.53	●	38	0.9	20/800
5181.05	25	90	0.53	●	Without introducer		20/800
5181.252	25	118	0.53	●	Without introducer		20/480
181.25	25	120	0.53	●	38	0.9	20/480
181.254	25	120	0.53	●	68	0.9	20/480
5181.253	25	128	0.53	●	Without introducer		20/480
181.45	25	145	0.53	●	38	0.9	20/180
181.454	25	145	0.53	●	68	0.9	20/180
5181.185	25	185	0.53	●	Without introducer		10/180
181.94	26	90	0.47	●	38	0.9	20/800
5181.94	26	90	0.47	●	Without introducer		20/800
181.04	27	90	0.42	●	38	0.7	20/800
5181.242	27	118	0.42	●	Without introducer		20/480
5181.24	27	120	0.42	●	Without introducer		20/480
5181.243	27	128	0.42	●	Without introducer		20/480
181.34	27	135	0.42	●	38	0.7	20/180
181.44	27	145	0.42	●	38	0.7	20/180
181.03	29	90	0.35	●	38	0.7	20/800
5181.23	29	120	0.35	●	Without introducer		20/480

Vygon

181.xxE
Whitacre spinal needle - Graduated introducer with metal hub

The spinal needle is inserted through the introducer with metal hub and centimetric graduations.

181.05E

Code	Needle				Introducer		Quantity Box/case
	G	Length mm	Ext. Ø	Colour code	Length mm	Ext. Ø mm	
181.07E	22	90	0.72	●	38	1.2	20/800
181.05E	25	90	0.53	●	38	0.9	20/800
181.25E	25	120	0.53	●	38	0.9	20/480
181.45E	25	145	0.53	●	38	0.9	20/180
181.94E	26	90	0.47	●	38	0.9	20/800
181.04E	27	90	0.42	●	38	0.7	20/800

181.xx2
Whitacre spinal needle with plastic hub introducer

The spinal needle is inserted through the introducer with plastic hub.

181.042

Code	Needle				Introducer		Quantity Box/case
	G	Length mm	Ext. Ø mm	Colour code	Length mm	Ext. Ø mm	
181.052	25	90	0.53	●	38	0.9	20/800
181.252	25	120	0.53	●	38	0.9	20/480
181.452	25	145	0.53	●	38	0.9	20/180
181.042	27	90	0.42	●	38	0.7	20/800
181.242	27	120	0.42	●	38	0.7	20/480
181.442	27	145	0.42	●	38	0.7	20/180

179
Spinal needle introducers

Introducer for spinal needle with metal hub.
Available in gauge 18 and 20.

intro**spin** (code **179.756**) is a 68mm long, echogenic and graduated introducer designed for obese patients.

intro**spin** is available alone or associated with Whitacre spinal needle 120mm long **(code 181.254)** and 145mm long **(code 181.454)**.

179.xx   179.756

Code	Introducer				Quantity Box/case
	G	Length mm	Ext. Ø mm	Int. Ø mm	
179.49	18	38	1.2	0.94	20/1920
179.45	20	38	0.9	0.64	20/1920
179.756	20	68	0.9	0.64	20/800

VYGON

180 / 5180
Quincke spinal needle for spinal anaesthesia

Spinal anaesthesia needle with short bevel "Quincke" type.
The introducer supplied with the following needles has a metal hub.

180.05   5180.94   5180.04
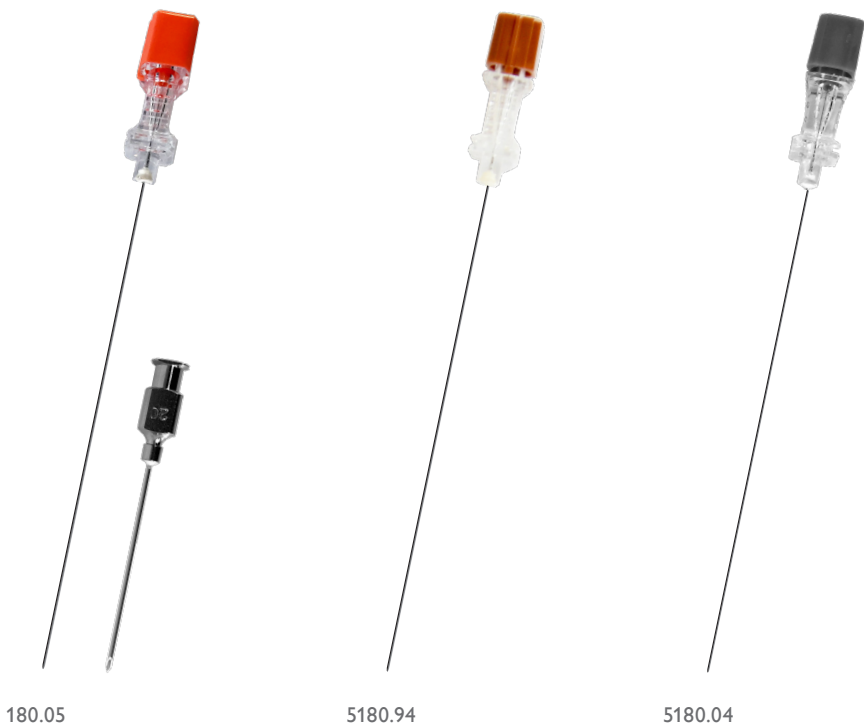
| Code | Needle | | | | Introducer | | Quantity Box/case |
	G	Length mm	Ext. Ø mm	Colour code	Length mm	Ext. Ø mm	
5180.76	23	75	0.60	🔵	Without introducer		20/800
5180.35	25	30	0.53	🟠	Without introducer		20/800
180.55	25	50	0.53	🟠	Without introducer		20/800
180.75	25	75	0.53	🟠	38	0.9	20/800
5180.75	25	75	0.53	🟠	Without introducer		20/800
180.05	25	90	0.53	🟠	38	0.9	20/800
5180.05	25	90	0.53	🟠	Without introducer		20/800
180.74	26	75	0.47	⚫	38	0.9	20/800
180.94	26	90	0.47	⚫	38	0.9	20/800
5180.94	26	90	0.47	⚫	Without introducer		20/800
180.04	27	90	0.42	⚪	38	0.7	20/800
5180.04	27	90	0.42	⚪	Without introducer		20/800
180.93	29	90	0.35	🔴	38	0.7	20/800

183 / 5180 / 5183
Quincke spinal needle for lumbar puncture

Lumbar puncture needle with short bevel "Quincke" type.

5183.51   5183.72   183.99   5180.27
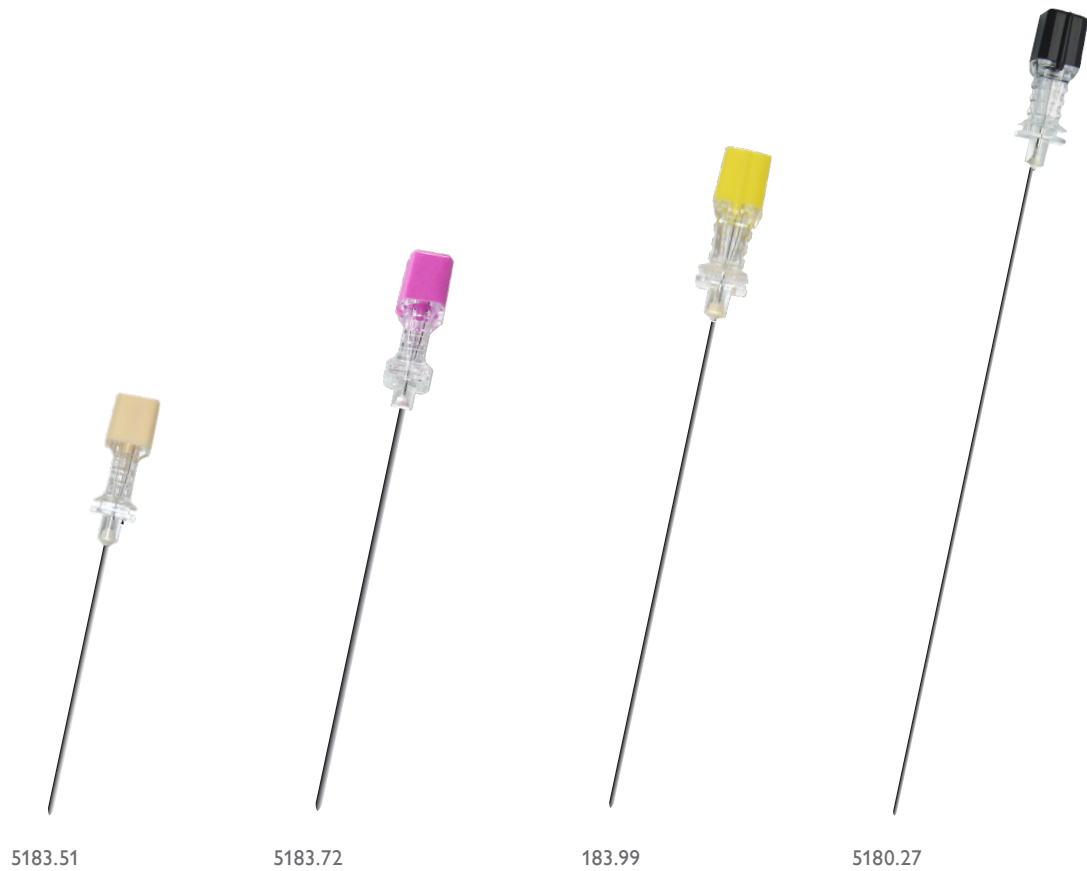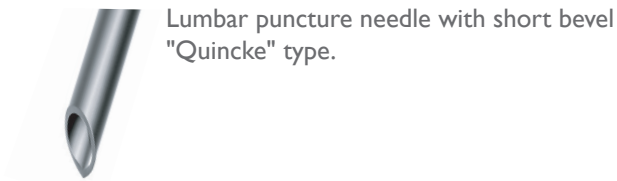
| Code | Needle | | | | Quantity Box/case |
	G	Length mm	Ext. Ø mm	Colour code	
5183.52	18	50	1.20	🟣	20/800
5183.72	18	75	1.20	🟣	20/800
183.92	18	90	1.20	🟣	20/800
5183.51	19	50	1.10	🟤	20/800
5183.71	19	75	1.10	🟤	20/800
183.91	19	90	1.10	🟤	20/800
183.49	20	38	0.90	🟡	20/800
5183.59	20	50	0.90	🟡	20/800
5180.79	20	75	0.90	🟡	20/800
183.99	20	90	0.90	🟡	20/800
183.47	22	38	0.72	⚫	20/800
5183.57	22	50	0.72	⚫	20/800
5183.77	22	75	0.72	⚫	20/800
183.97	22	90	0.72	⚫	20/800
5180.27	22	120	0.72	⚫	20/180
5180.07	22	150	0.72	⚫	20/180

VYGON

Epidural anaesthesia

184
Tuohy needle (Luer)

Needle
- The heel of the bevel is smoothed to reduce the risk of cutting the epidural catheter
- Needle/stylet fit together perfectly to give a completely
  smooth bevel surface and minimize coring of the skin and subcutaneous tissues
- Centimetric graduations to easily identify the insertion depth of the needle
- Extra-long needles available for obese patients.

Hub
- Transparent plastic to easily visualise any fluid reflux
  (blood or CSF)
- With removable wings (optional use) for easier handling and control of the needle during
  insertion.

Stylet
- With lug to indicate bevel orientation
- Plastic or stainless steel depending on rigidity desired
- Standard colour coding corresponding to the external
  diameter of the needle.

184.881   184.28

Code	Needle					Stylet material	Quantity Box/case
	G	Length mm	Ext. Ø mm	Int. Ø mm	Colour code		
184.86	16	80	1.65	1.35	🔵	Metal	20/800
184.16	16	90	1.65	1.35	🔵	Metal	20/800
184.87	17	80	1.5	1.2	⚪	Metal	20/800
184.17	17	90	1.5	1.2	⚪	Metal	20/800
184.27	17	120	1.5	1.2	⚪	Metal	20/480
184.88	18	80	1.3	1.07	🔴	Metal	20/800
184.881	18	80	1.3	1.07	🔴	Plastic	20/800
184.882*	18	80	1.3	1.07	🔴	Metal	20/800
184.18	18	90	1.32	1.12	🔴	Metal	20/800
184.28	18	120	1.32	1.12	🔴	Metal	20/180
184.58	18	153	1.32	1.12	🔴	Metal	20/180
184.19	19	90	1.08	0.8	🟤	Metal	20/800

*Tuohy needle with **back-eye**

peribax catheters and sets for epidural anaesthesia

peribax: Pebax® epidural catheter (polyether block amide)

peribax catheters feature:
- Excellent compromise between flexibility and rigidity, allowing easy insertion of catheter
  while limiting risk of trauma
- Excellent rupture resistance due to high stretch potential, making it very safe to use in
  case of catheter blockage during withdrawal
- Excellent torque control to guide the catheter
- Good resistance to kinking
- Smoothed distal end to limit the risk of trauma
- Transparent with radiopaque line.

Markings:
- Centimetric graduations from 5 to 20cm from the distal tip
- Black mark on the distal end to ensure that the entire catheter has been withdrawn
- Marking showing the user that the tip of catheter is at the tip of the Tuohy needle.

peribax catheters are available in 2 different diameters: 19G and 20G and 2 types of distal end: open or closed with 3 lateral eyes.

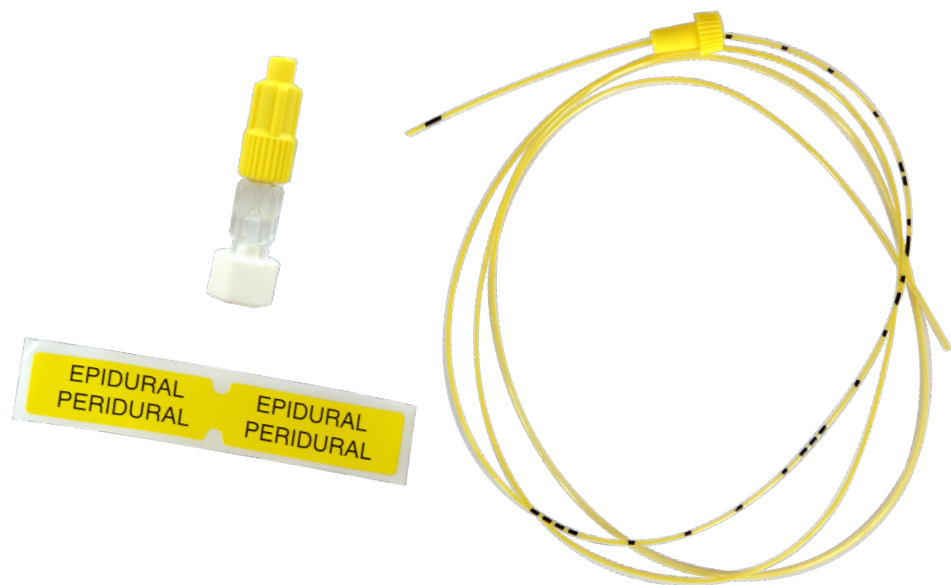peribax 20G catheters codes 5191.337, 5191.3371 and 5291.337 feature a soft distal end in order to:
- Decrease risks of vascular or dura mater puncture
- Allow the catheter to naturally extend the curve generated by the Tuohy needle
- Offer an ideal combination between rigidity and flexibility.

Epidural range with peri**bax** 20G epidural catheter
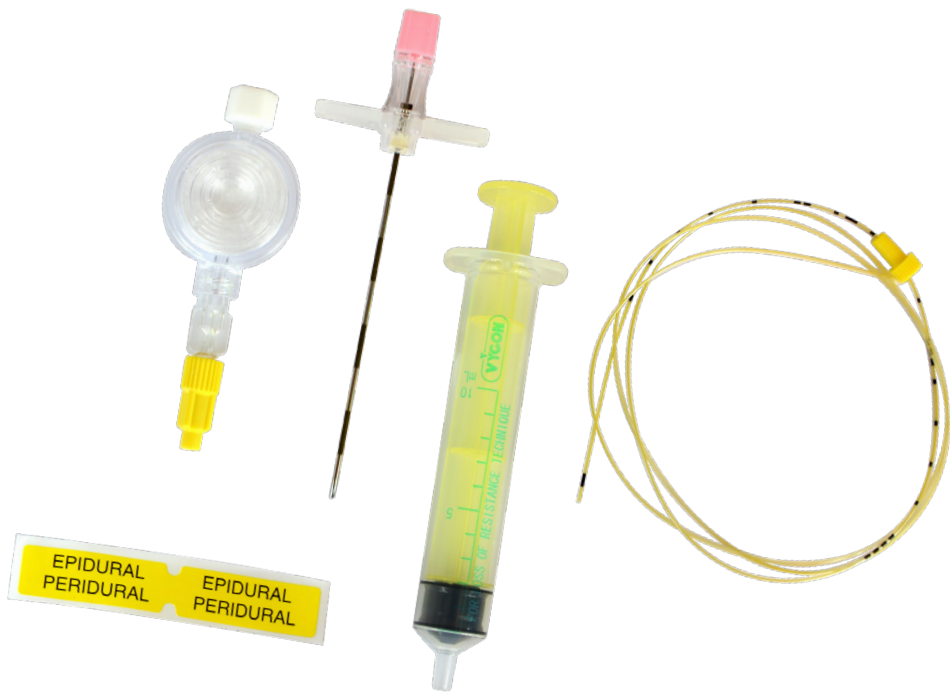
5186
peri**bax** 20G epidural catheter

peri**bax** 20G catheter is presented in soft blister pack with:
• 1 catheter guide which connects to the needle hub and facilitates insertion of the catheter into the needle and epidural space
• 1 Easy-lock catheter connector
• 1 yellow label for epidural access identification.

5191
peri**bax** 20G epidural set

Presented in soft blister pack containing:
• 1 Tuohy needle 18G with transparent hub, removable wings and metal or plastic stylet
• 1 peri**bax** catheter 20G, 90cm with catheter guide
• 1 Easy-lock catheter connector with pre-mounted antibacterial filter 0.2µm
• 1 loss of resistance 10ml syringe
• 1 yellow label for epidural access identification.

Code	Catheter					Recommended introducer	Quantity Box/case
	G	Length cm	Ext. Ø mm	Int. Ø mm	Distal end	G	
5186.082	20	90	0.85	0.45	Open	18	20/240
5186.382	20	90	0.85	0.45	Closed with 3 lateral eyes	18	20/240

Code	Catheter					Needle			Quantity Box/case
	G	Length cm	Ext. Ø mm	Int. Ø mm	Distal end	G	Length mm	Stylet material	
5191.088	20	90	0.85	0.45	Open	18	90	Metal	20/120
5191.388	20	90	0.85	0.45	Closed with 3 lateral eyes	18	90	Metal	20/120
5191.087	20	90	0.85	0.45	Open	18	80	Metal	20/120
5191.337	20	90	0.85	0.45	Closed with 3 lateral eyes*	18	80	Metal	20/120
5191.3371	20	90	0.85	0.45	Closed with 3 lateral eyes*	18	80	Plastic	20/120
5191.387	20	90	0.85	0.45	Closed with 3 lateral eyes	18	80	Metal	20/120
5191.3871	20	90	0.85	0.45	Closed with 3 lateral eyes	18	80	Plastic	20/120

*Flexible distal end

VYGON

Epidural range with peribax 19G epidural catheter

5186
peri**bax** 19G epidural catheter

Presented in soft blister pack with:
• 1 catheter guide which connects onto the needle hub and facilitates insertion of the catheter into the needle and epidural space
• 1 Easy-lock catheter connector
• 1 yellow label for epidural access identification.
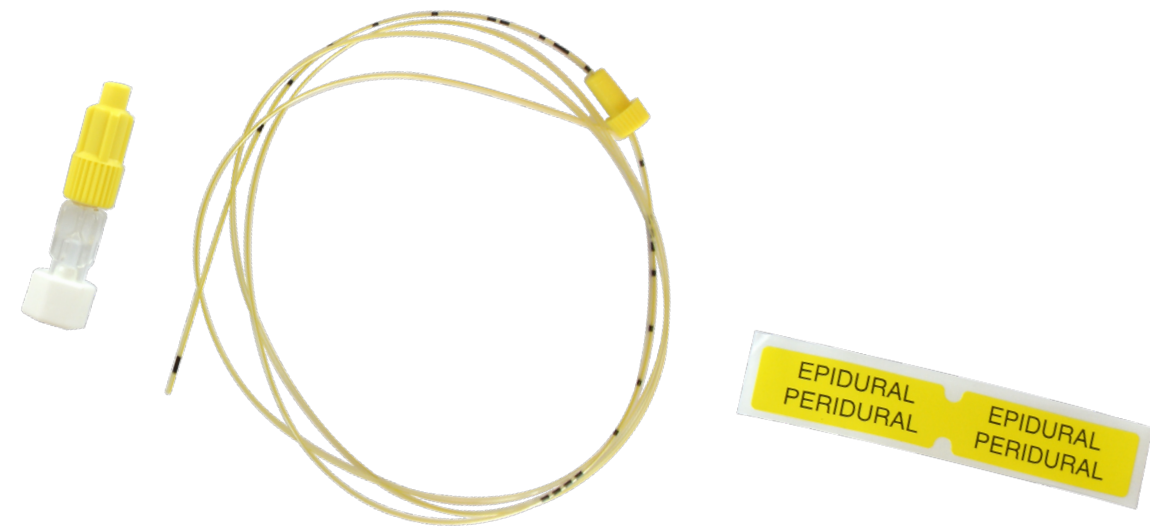
| Code | Catheter | | | | | Quantity Box/case |
	G	Length cm	Ext. Ø mm	Int. Ø mm	Distal end	
5186.602	19	90	1.0	0.5	Open	20/240
5186.802	19	90	1.0	0.5	Closed with 3 lateral eyes	20/240

5191
peri**bax** 19G epidural set

Presented in soft blister pack containing:
• 1 Tuohy needle 16G, 80mm with transparent hub, removable wings and metal stylet (ref. 184.86)
• 1 peri**bax** catheter 19G, 90cm with catheter guide
• 1 Easy-lock catheter connector with pre-mounted antibacterial filter 0.2µm
• 1 loss of resistance 10ml syringe
• 1 yellow label for epidural access identification.
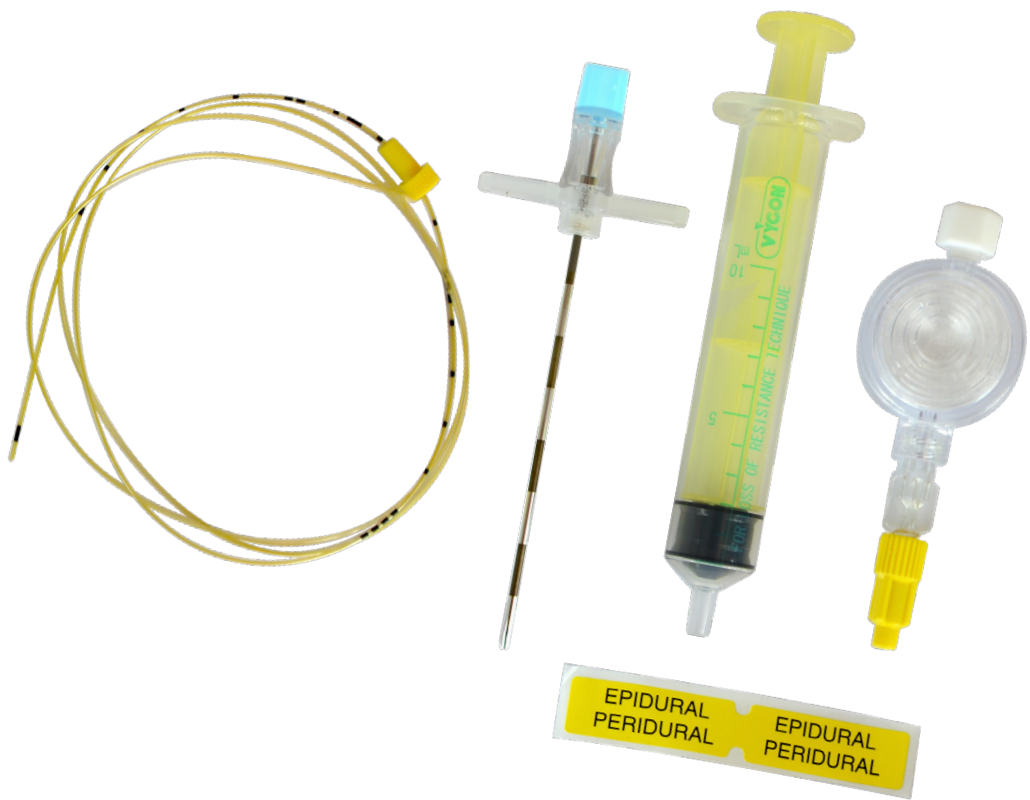
| Code | Catheter | | | | | Needle | | Quantity Box/case |
	G	Length cm	Ext. Ø mm	Int. Ø mm	Distal end	G	Length mm	
5191.601	19	90	1.0	0.5	Open	16	80	20/120
5191.801	19	90	1.0	0.5	Closed with 3 lateral eyes	16	80	20/120

peri**pur** catheters, mini-sets and sets for epidural anaesthesia

peri**pur** catheters are made from polyurethane, which remains relatively stiff during insertion but then softens once in place. These catheters can be inserted through a 16G, 17G or some references of 18G Tuohy needles (184.18, 184.28 and 184.58).

Catheters from peri**pur** range feature:
• Transparent polyurethane epidural catheter 19G, 90cm with radiopaque line
• Smoothed distal end
• Resistant to kinking and stretching
• Markings:
   - Centimetric graduations from 5 to 20cm from the distal tip
   - Black mark at the distal end to make sure that the catheter has been fully removed from the patient.

peri**pur** catheters are available in 19G with 2 types of distal tip: open or closed with 3 lateral eyes.

Epidural range with peripur epidural catheter

186.10 - 186.30
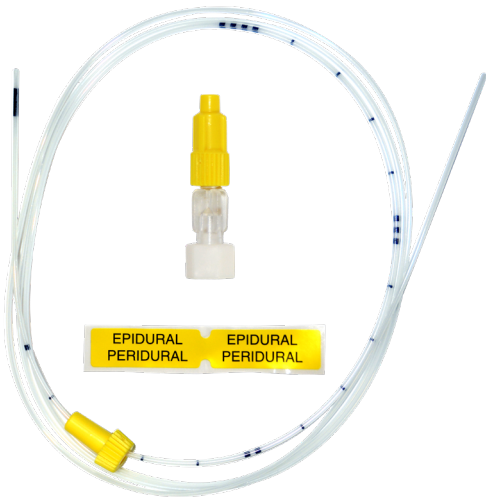peri**pur** epidural catheter

peri**pur** catheter **with open tip or closed tip and 3 lateral eyes** is presented in soft blister pack with:
• 1 catheter guide to facilitate the insertion of the catheter in the epidural space
• 1 Easy-lock catheter connector
• 1 yellow label for epidural access identification.

Code	Catheter					Recommended Introducer	Quantity Box/case
	G	Length cm	Ext. Ø mm	Int. Ø mm	Distal end	G	
186.10	19	90	1.0	0.5	Open	17	20/240
186.30	19	90	1.0	0.5	Closed with 3 lateral eyes	17	20/240

188.10 - 189.60 - 191.10 - 188.30 - 189.30 - 191.30
Mini-set with peri**pur** epidural catheter

Presented in soft blister pack containing:
• 1 peri**pur** epidural catheter 90cm, 19G, open tip (ref. 186.10) or closed tip and 3 lateral eyes (ref. 186.30) with catheter guide and Easy-lock catheter connector
• 1 Tuohy needle 90mm, 17G with plastic hub, removable wings, centimetric graduations with metal stylet (ref. 184.17)
• 1 antibacterial filter 0.2µm
• 1 loss of resistance 10ml syringe
• 1 yellow label for epidural access identification.
Exact composition of each code is detailed within the following table.

191.10

| Code	Components					Quantity Box/case
	Catheter distal end	17G Tuohy needle	Flat filter 0.2µm	Loss of resistance 10ml syringe	Yellow label	
188.10	Open	X			X	20/240
189.60	Open	X	X		X	20/240
191.10	Open	X	X	X	X	20/120
188.30	closed with 3 lateral eyes	X			X	20/240
189.30	closed with 3 lateral eyes	X	X		X	20/240
191.30	closed with 3 lateral eyes	X	X	X	X	20/120

VYGON

189.70
Complete tray for epidural anaesthesia

Presented in a tray containing:
• 1 peri**pur** epidural catheter 90cm, 19G, open tip with catheter guide and Easy-lock catheter connector (ref. 186.10)
• 1 Tuohy needle 90mm, 17G with plastic hub, removable wings, centimetric graduations with metal stylet (ref. 184.17)
• 3 hypodermic needles: 18G/21G – 38mm, 25G – 16mm
• 1 antibacterial filter 0.2µm
• 1 loss of resistance 10ml syringe
• 1 Luer slip 5ml syringe
• 3 gallipots
• 1 drape towel 46x60cm
• 1 fenestrated drape 65x60cm - opening 7x12cm with adhesive edge
• 2 sponge sticks
Quantity box/case: 1/8
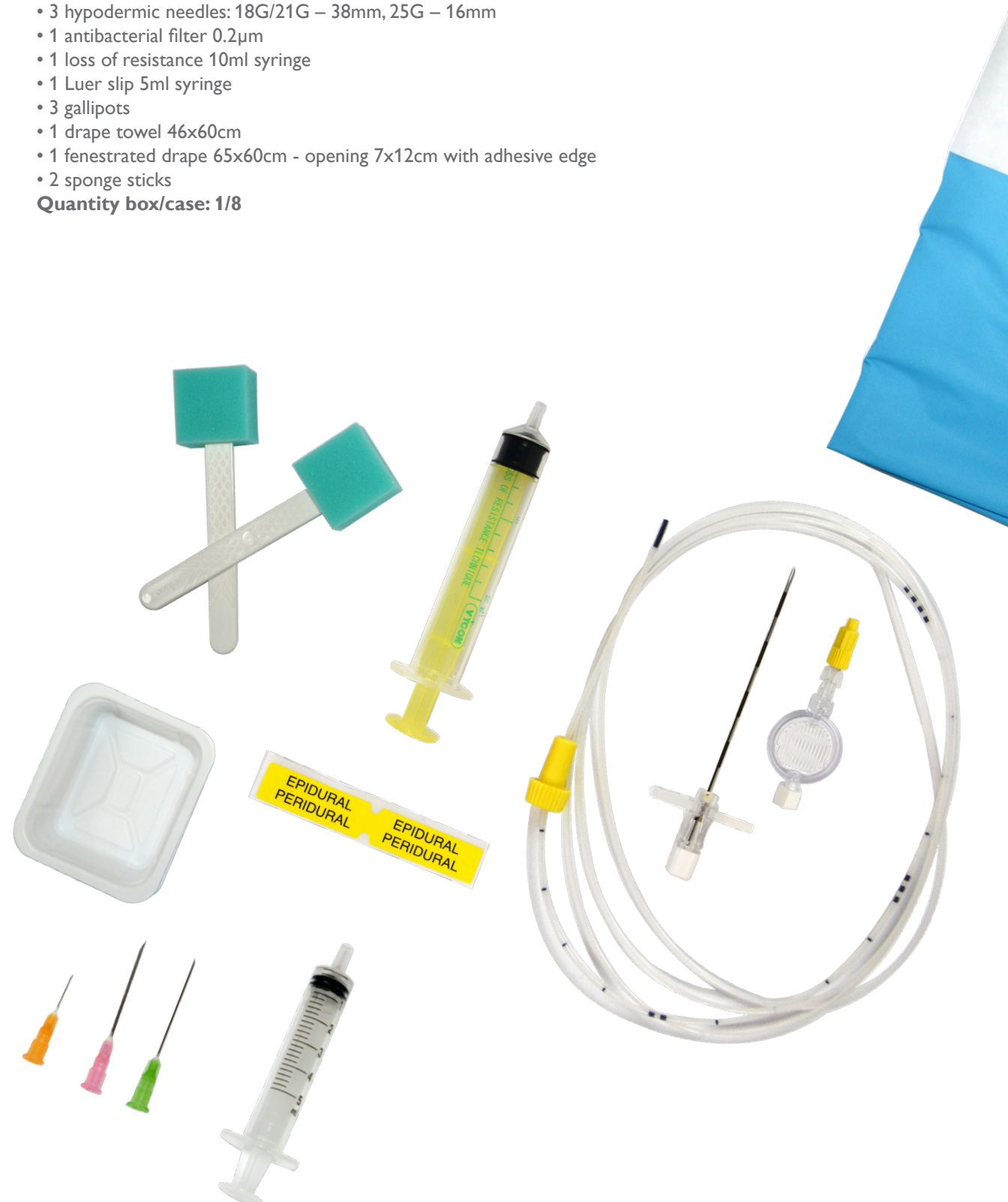
188.47
Set for paediatric epidural anaesthesia

Presented in soft blister pack containing:
• 1 polyurethane catheter 40cm, 22G (Int. Ø 0.3mm – Ext. Ø 0.7mm) with radiopaque line, open tip, and centimetric markings from 2cm to 20cm from the distal tip and a black mark on the distal tip allowing the user to check that the entire catheter has been withdrawn. It is supplied with a catheter guide which connects to the needle hub and facilitates insertion of the catheter into the epidural space
• 1 Tuohy needle 50mm, 19G with plastic hub and removable wings, markings every 0.5cm from 1cm from the distal tip
• 1 antibacterial filter 0.2µm
• 1 loss of resistance 10ml syringe
• 1 yellow label for epidural access identification
Quantity box/case: 20/240

VYGON
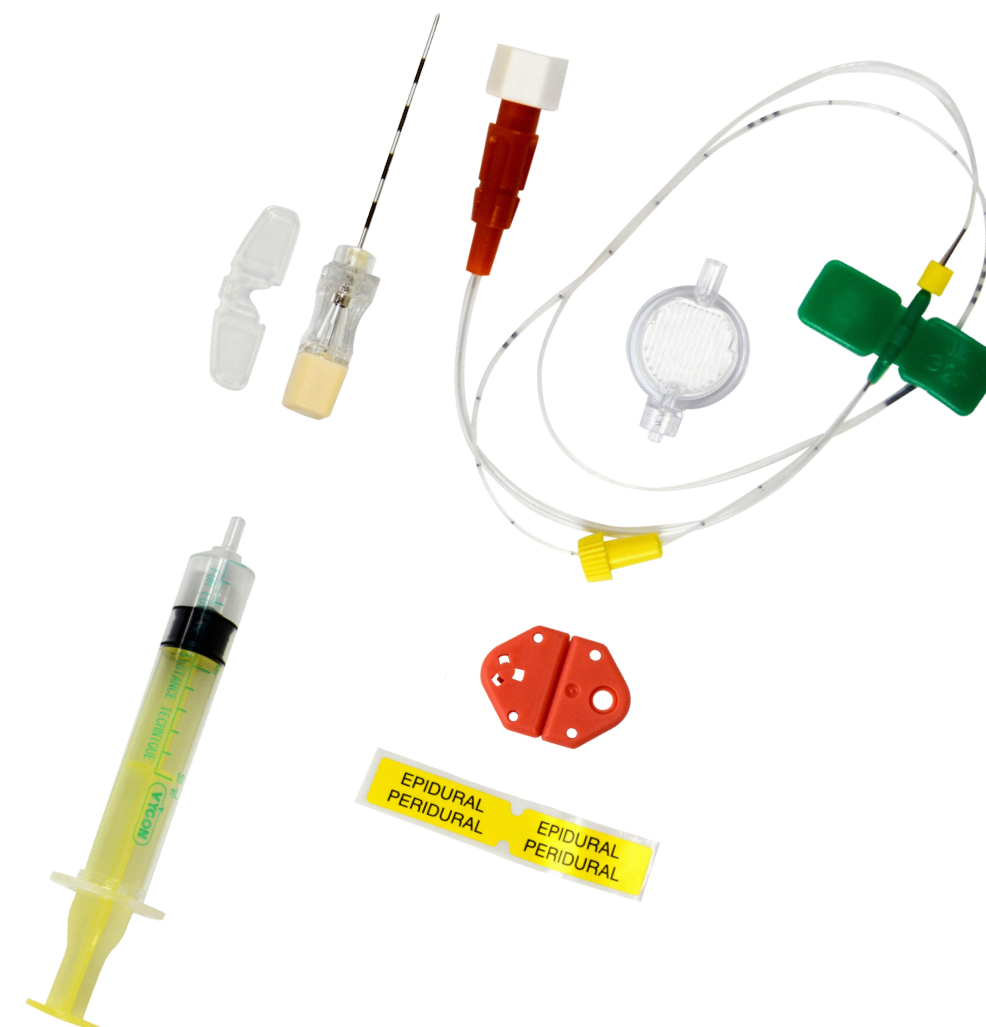
peri**styl**
Flexible epidural catheter with stylet

peri**styl** catheters are extra-flexible polyethylene catheters with stylet, transparent with radiopaque line. The pre-mounted metal stylet allows easy insertion of the catheter. The flexibility of the catheter and the smooth distal tip reduce the risk of dural or vascular puncture.
peri**styl** catheters feature centrimetric graduations from 5 to 20cm and a black mark at the distal end.
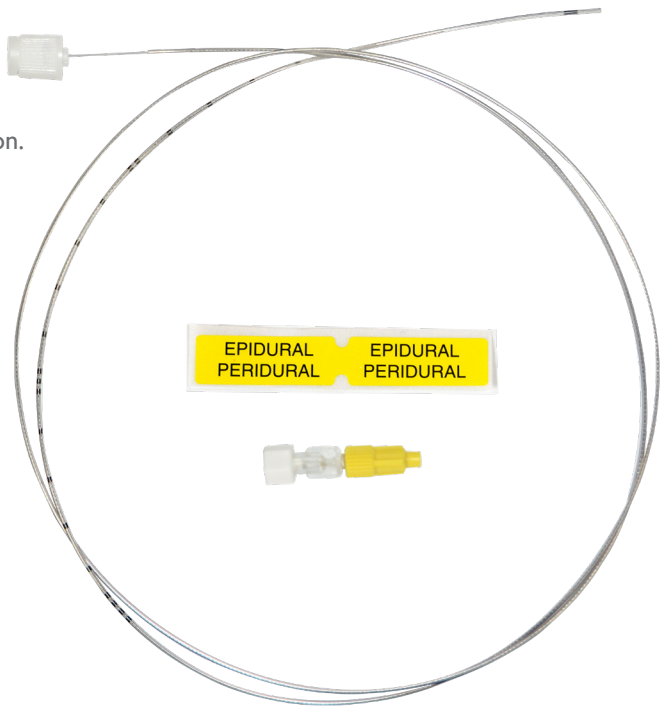
peri**styl** catheters are available in 19G with 2 types of distal end (open or closed with 3 lateral eyes).

185
peri**styl** epidural catheter

Presented in soft blister pack with:
• 1 Easy-lock catheter connector
• 1 yellow label for epidural access identification.

	Catheter					Recommended Introducer G	Quantity Box/case
Code	G	Length cm	Ext. Ø mm	Int. Ø mm	Distal end		
185.10	19	90	1.0	0.5	Open	17	20/240
185.30	19	90	1.0	0.5	Closed with 3 lateral eyes	17	20/240

187.10 / 189.50 / 191.50 / 191.70
Mini-set with peri**styl** epidural catheter

Presented in a soft blister pack containing:
• 1 peri**styl** epidural catheter 90cm, 19G with Easy-lock catheter connector (ref. 185)
• 1 Tuohy needle 90mm, 17G with plastic hub, removable wings, centimetric graduations and metal stylet (ref. 184.17)
• 1 antibacterial filter 0.2µm
• 1 loss of resistance 10ml syringe
• 1 yellow label for epidural access identification.

191.50

Code	Components						Quantity Box/case
	Catheter 185.10	Catheter 185.30	17G Tuohy needle	Flat filter 0.2µm	10ml loss of resistance syringe	Yellow label	
187.10	X		X			X	20/240
189.50	X		X	X		X	20/240
191.50	X		X	X	X	X	20/120
191.70		X	X	X	X	X	20/120

VYGON

189.05

Complete tray for epidural anaesthesia with peri**styl** catheter

Presented in a tray containing:
• 1 peri**styl** epidural catheter 90cm, 19G, open tip with Easy-lock catheter connector (ref. 185.10)
• 1 Tuohy needle 90mm, 17G
• 3 hypodermic needles (18G/21G – 38 mm, 25G – 16mm)
• 1 loss of resistance 10ml syringe
• 1 Luer slip 2.5ml plastic syringe
• 1 forceps
• 5 swabs 10x10cm
• 4 ball swabs
• 1 drape towel 100x120cm
• 1 antibacterial filter 0.22µm.

Quantity box/case: 1/8

Epidural anaesthesia under ultrasound

6084.881

Rafa Tuohy needle

Echogenic Tuohy needle (80mm,18G) for epidural anaesthesia under ultrasound with:
• Circular centimetric graduations to aid insertion of the needle
• Echogenic coating (sand-blasted) every other centimetre and up to the tip for optimal visibility
• Transparent hub for visualisation of reflux (blood or CSF)
• Removable wings for easier insertion
• Plastic stylet with lug to indicate bevel orientation and standard colour coding corresponding to the external diameter of the needle.

Quantity box/case: 20/800

5291.337

Epidural echo set

Presented in soft blister pack containing:
• 1 Tuohy needle 80mm, 18G with transparent hub, removable wings and metal stylet (ref. 184.88)
• 1 peri**bax** catheter 90cm, 20G with flexible distal end, closed with 3 lateral eyes
• 1 Easy-lock catheter connector with pre-mounted antibacterial filter 0.2µm
• 1 epi**matic** loss of resistance 10ml syringe. This syringe allows automatic detection of the epidural space owing to the continuous positive pressure applied to the piston by an elastic strip (ref. 1018.102)
• 1 yellow label for epidural access identification.

Quantity box/case: 20/120
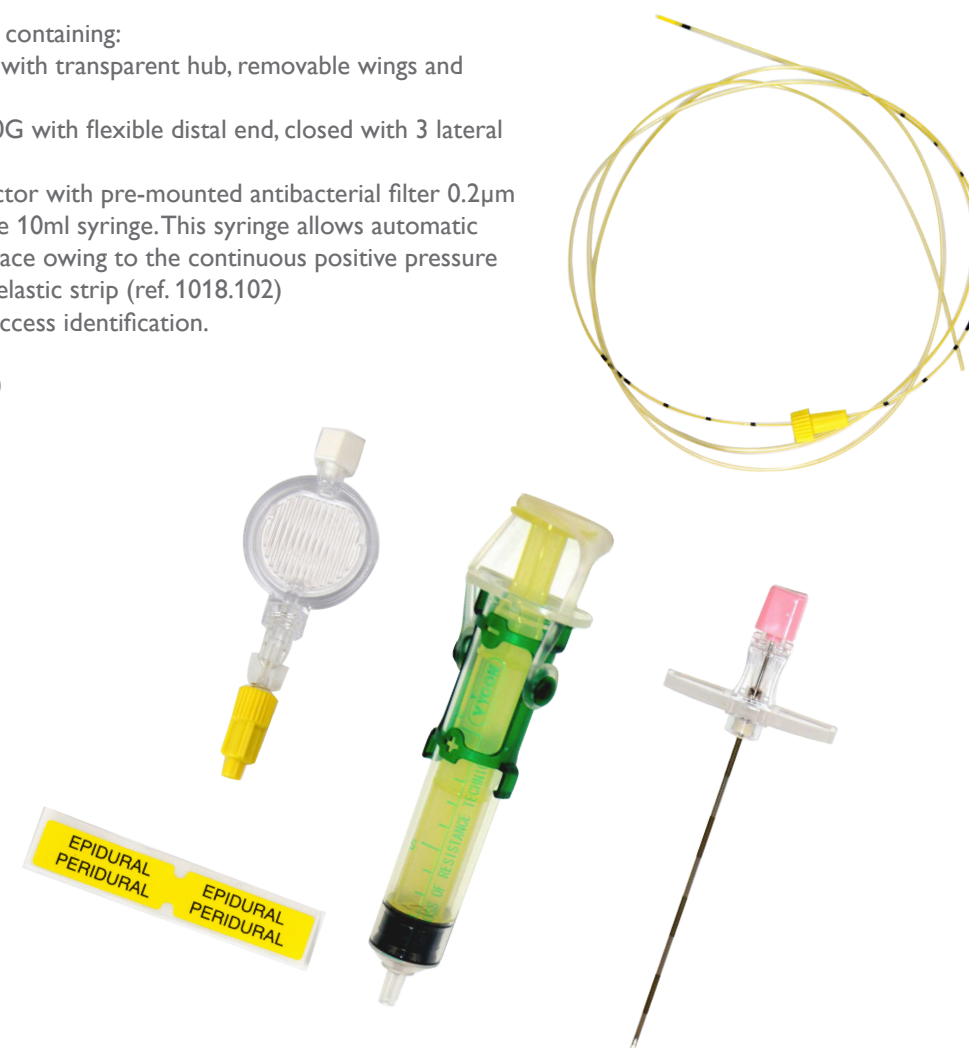
Accessories

808.22
Flat filter for epidural anaesthesia

Flat anti-bacterial filter for epidural anaesthesia.
Porosity 0.2μm.

| Code | Filter | | | | Quantity Box/case |
	Filter Surface area cm²	Flow rate ml/min	Prim. vol. ml	Pressure resistance bar	
808.22	4.3	>200ml/min at 3.1bar	0.9	5.2 bar	25/600

809.22
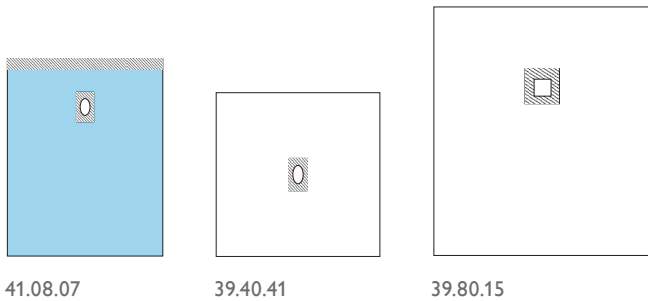### Round filter

Round anti-bacterial filter for retaining microbial particles and contaminants contained in solutions.
Porosity 0.2μm.

| Code | Filter | | | | Quantity Box/case |
	Filter Surface area cm²	Flow rate ml/min	Prim. vol. ml	Pressure resistance bar	
809.22	2.8	>180ml/min at 3.1bar	0.85	5.2 bar	50/1000

41.08.07 / 39.40.41 / 39.80.15
Drapes for epidural anaesthesia

41.08.07   39.40.41   39.80.15

| Code | Drape | | | Quantity Box/case |
	Dimensions cm	Opening cm	Quality	
41.08.07	70 x 80	7 x 12	Absorbent impermeable	25/50
39.40.41	40 x 40	Ø 6	Transparent impermeable	60/720
39.80.15	80 x 140	7.5 x 5.4	Transparent impermeable	55/220

Syringes for loss of resistance technique

1018
Plastic syringe for loss of resistance technique

Loss of resistance plastic syringe allowing location of the epidural space.

1018.07   1018.10   1018.103

| Code | Syringe | | Quantity Box/case |
	Volume ml	Tip	
1018.07	7	Luer slip	20/240
1018.10	10	Luer slip	20/240
1018.103	10	Luer-lock	20/240

1019.10
Glass syringe for loss of resistance technique

10ml loss of resistance glass syringe with Luer-lock fitting for detection of the epidural space.

Quantity box/case: 20/120

1018.102

epi**matic**: Loss of resistance syringe for automatic detection of the epidural space

This Luer slip 10ml syringe allows automatic detection of the epidural space owing to the continuous positive pressure applied to the piston by an elastic strip.

Advantages:
• Inserting the needle with 2 hands ensures a smooth progression
• Visual confirmation of access of the Tuohy needle to the epidural space
• Syringe can be used either with liquid or air.

Quantity box/case: 20/240
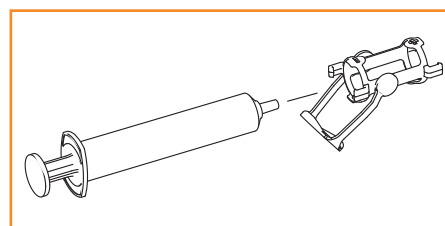
1 Choose the type of technique used for locating the epidural space.
• If gas is used, position the letter "G" or the symbol "-" toward the piston of the syringe (toward the operator).
• If liquid is used, position the letter "L" or the symbol "+" toward the piston of the syringe (toward the operator).
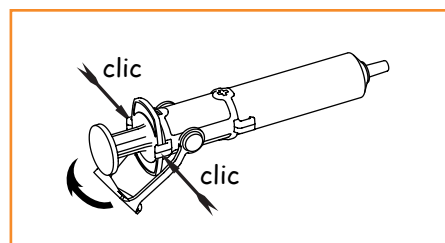
2 Clip the accessory on the syringe.
Place the elastic strip on the piston of the syringe.
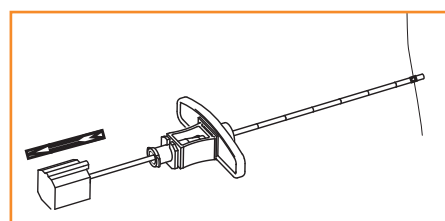
3 Use the standard procedure to insert the Tuohy needle.
After positioning the needle into the inter-spinous ligaments, withdraw the stylet.
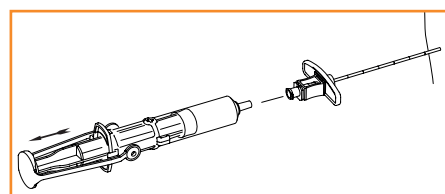
4 Aspirate liquid or air. Maintain the position of the piston with one hand. Connect the syringe to the Tuohy needle.
Release the piston of the syringe. The pressure that the elastic strip maintains on the piston is adapted to the type of technique and the volume used.
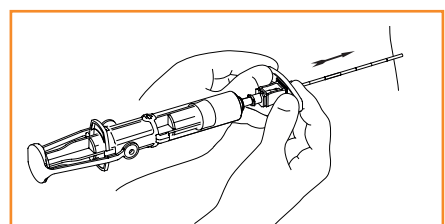
5 Place the hands on the wings of the Tuohy needle to control the push on the needle. The loss of resistance is visible with the sudden move of the piston of the syringe. As soon as the loss of resistance happens, stop the move forward, the epidural space is identified.

Combined Spinal - Epidural anaesthesia

Combined spinal-epidural anaesthesia enables spinal anaesthesia and epidural anaesthesia to be performed sequentially.

Combined spinal-epidural anaesthesia device with specific characteristics:

• Tuohy needle featuring a back-eye at the distal end which allows the spinal needle to pass through,

• Whitacre needle with mark indicating the exit point of the Whitacre needle (1) from the back eye (2) of the Tuohy needle.

Whitacre needle

Exit point marking

(1)

Back eye

(2)

Tuohy needle

118mm

15mm

Whitacre needle
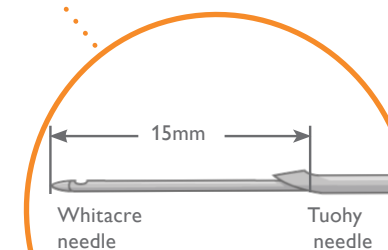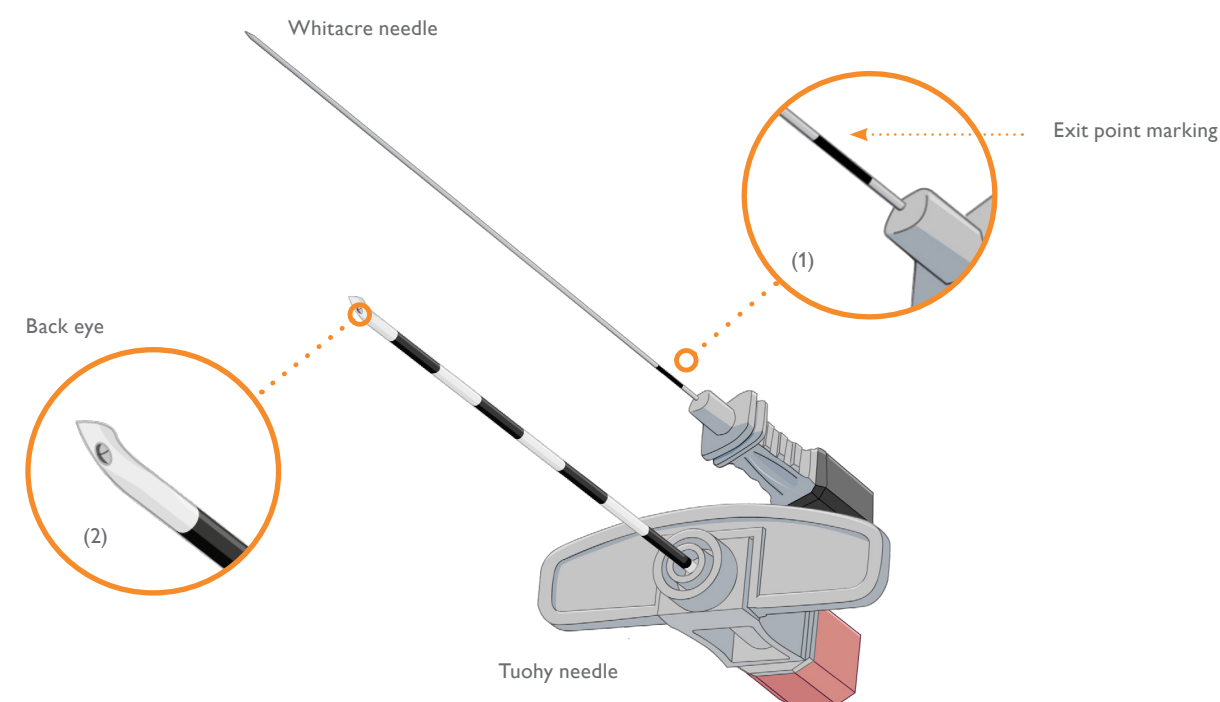
Tuohy needle

Special length of the Whitacre needle to offer a 15mm protrusion.

192
Mini-set for combined spinal - epidural anaesthesia

Presented in soft blister pack containing:
• 1 epidural Tuohy needle with transparent hub, removable wings and back eye
• 1 Whitacre needle with black marking.

192.202

Code	Whitacre type spinal needle			Tuohy needle with Back Eye			Quantity Box/case
	G	Length mm	Colour of hub	G	Length mm	Colour of hub	
192.202	25	118	🟠	18	80	🔴	20/80
192.201	27	118	⚪	18	80	🔴	20/80

6186
Set for combined spinal - epidural anaesthesia

Presented in rigid blister pack containing:
• 1 Tuohy needle with back eye, transparent hub and removable wings
• 1 Whitacre needle with transparent hub and black mark
• 1 loss of resistance 10ml syringe
• 1 peri**bax** epidural catheter 20G, 90cm long, with closed tip, 3 lateral eyes and flexible distal end. It has centimetric graduations, needle exit marking and catheter guide
• 1 Easy-lock catheter connector
• 1 antibacterial filter 0.2μm
• 1 yellow label for epidural access identification.

6186.042

Code	Whitacre type spinal needle			Tuohy needle with Back Eye			Quantity Box/case
	G	Length mm	Colour of hub	G	Length mm	Colour of hub	
6186.052	25	118	🟠	18	80	🔴	20/80
6186.042	27	118	⚪	18	80	🔴	20/80

Plexus and peripheral nerve blockade
Needles for single shot injections under ultrasound and nerve stimulation
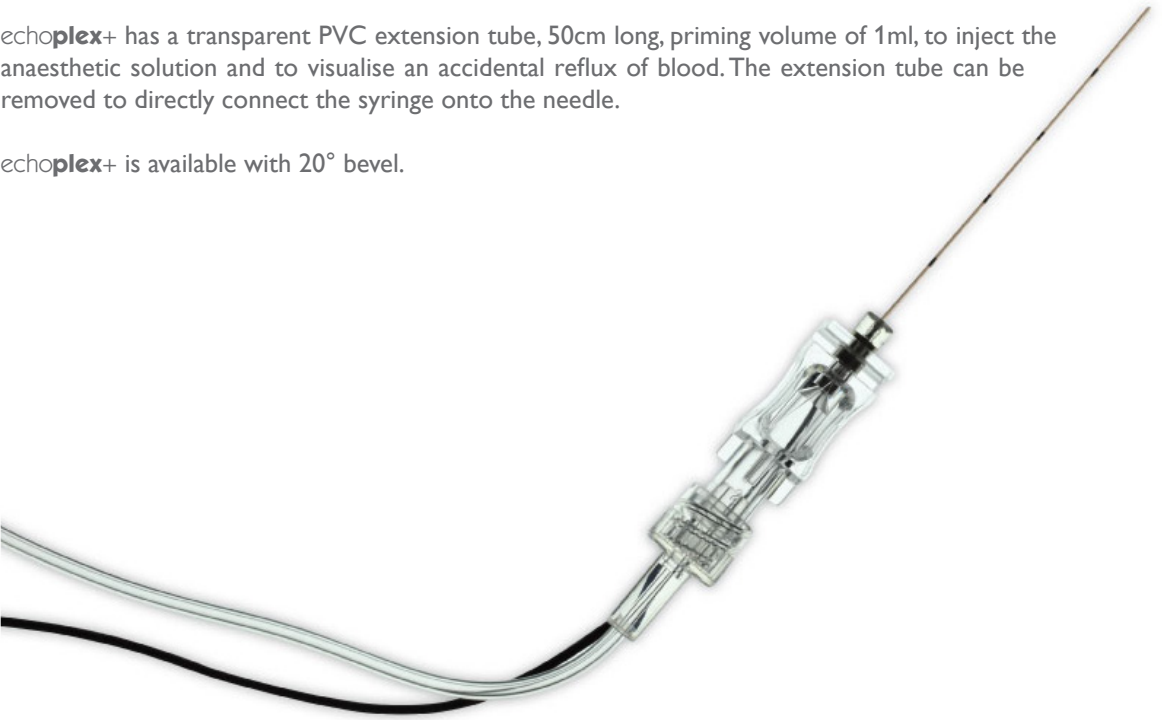
6194
echo**plex**+ for single shot injection

echo**plex**+ is an echogenic and stimulating needle for plexus and peripheral nerve blocks carried out under ultrasound and nerve stimulation. Needle with an insulating coating on its entire length, only the tip of the bevel is conductive. This coating incorporates multiple microscopic glass beads intensifying ultrasound reflection and making echo**plex**+ echogenic right to the tip of the needle.

echo**plex**+ has following characteristics:
- circular centimetric graduations to aid insertion of the needle
- large ergonomic hub allowing a good hold. Its transparency makes it possible to quickly detect a possible reflux of blood during the aspiration test
- electric cord (60cm long) to keep the nerve stimulator away from the sterile area. Bevel orientation is identified by the position of electric cord on the hub.

echo**plex**+ has a transparent PVC extension tube, 50cm long, priming volume of 1ml, to inject the anaesthetic solution and to visualise an accidental reflux of blood. The extension tube can be removed to directly connect the syringe onto the needle.

echo**plex**+ is available with 20° bevel.

Code	Needle G	Length mm	Quantity Box/case
6194.253	23	25	20/240
6194.353	23	35	20/240
6194.503	22	50	20/240
6194.853	21	85	20/240
6194.103	21	100	20/240
6194.123	20	120	20/180
6194.153	20	150	20/180

Catheters for continuous infusion
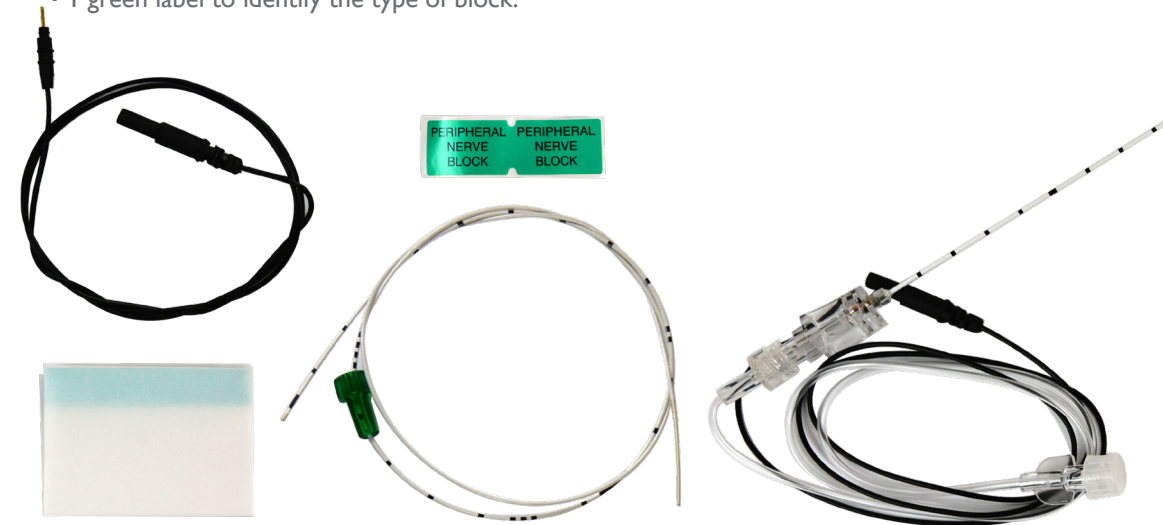
5198
silver**stim** for continuous infusion

silver**stim** is an echogenic, stimulating and radio-opaque 20G catheter for continuous plexus and peripheral nerve blocks with ultrasound and nerve stimulation. A thin silver layer is spread on the whole length of the catheter which ensures optimum conductivity and echogenicity.

The catheter has the following characteristics:
- Electrical insulation with a thin layer of PET (polyethylene terephtalate), except on:
  - the distal end 2mm of catheter for nerve stimulation
  - 2cm on the proximal end where the Easy-lock connector is fitted and connected to the nerve stimulator.
  - Open distal end for hydrolocalisation
- Circular centimetric graduations to identify length inserted and a mark indicating that the catheter is about to protrude beyond the bevel of the introducer.

The catheter can be inserted with either:
- 20G stimulating needle with an over-the-needle 18G split cannula which electrically isolates the needle
- 17G stimulating needle with Tuohy bevel
- 18G stimulating needle with 30° angulation.

Presented in rigid blister pack containing:
- 1 catheter (20G – Int. Ø 0.43mm, Ext. Ø 0.88mm) with catheter guide and Easy-lock catheter connector allowing the connection between the catheter and the nerve stimulator
- 1 stimulating needle
- 1 electric connecting cable allowing stimulation whenever required
- 1 antibacterial filter 0.2μm
- 1 transparent polyurethane dressing 10x15cm derma**film**
- 1 green label to identify the type of block.

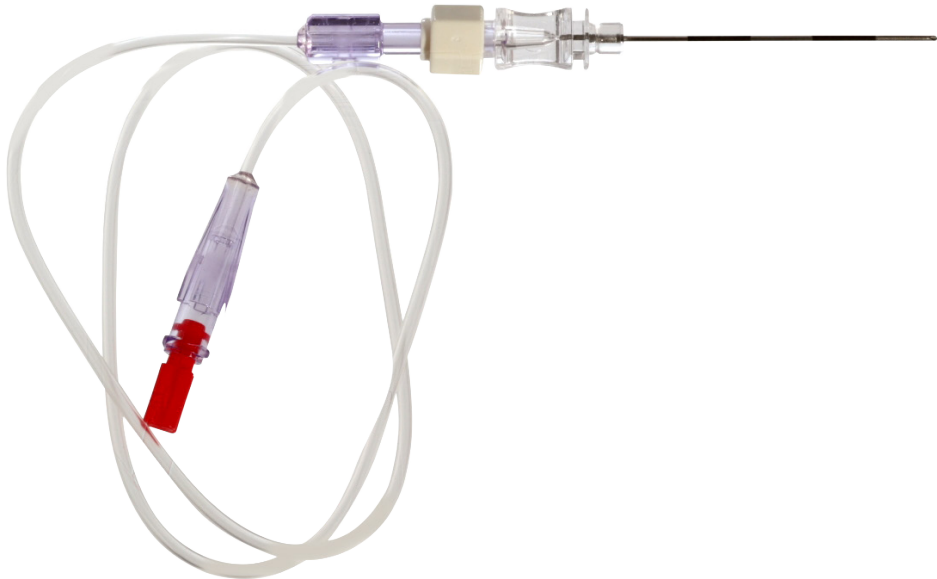| Code			Needle or cannula	Catheter	Quantity Box/case
30° needle	Needle with split cannula	Tuohy needle	Length mm	Length cm	
5198.353	5198.3533	-	35	30	10/40
5198.503	5198.5033	5198.506	50	30	10/40
5198.853	5198.8533	5198.856	85	50	10/40
5198.103	-	-	100	50	10/40
5198.123	5198.1233*	-	120	50	10/40

*Quantity box/case: 5/45

Plexus blocks under ultrasound

6094
visio**plex** for single shot injection

visio**plex** is an echogenic needle for TAP blocks, plexus and peripheral nerve blocks carried out under ultrasound guidance. To make the needle more echogenic, the stainless steel of the needle has been sand-blasted at the distal end on the last centimetre.

visio**plex** has following characteristics:
- 30° bevel for maximum perception of facias,
- circular centimetric graduations to aid insertion of the needle, large ergonomic hub allowing a good hold. Its transparency makes it possible to quickly detect a possible reflux of blood during the aspiration test.

visio**plex** has a transparent PE-lined PVC extension tube, 50cm long, priming volume of 1ml, to inject the anaesthetic solution and to visualise any reflux of blood. The extension tube can be removed to directly connect the syringe onto the needle.

Code	Needle		Quantity Box/case
	G	Length mm	
6094.3534	22	35	20/240
6094.503	20	50	20/240
6094.5034	22	50	20/240
6094.8534	22	85	20/240
6094.103	20	100	20/240

7507.515
echo**support**: universal supporting arm

Supporting arm designed to hold an ultrasound probe during regional anaesthesia procedures. It can be adjusted to suit the dimensions of every ultrasound probe with 2 silicone strips.

Quantity box/case: 1/15

UES 010

96.93.2761
Ultrasound set for single shot injection

Sterile set for the protection of the ultrasound probe when inserting a needle for single shot plexus or peripheral nerve block.

The set is supplied in soft blister pack containing:
• 1 pre-folded ultrasound probe cover, packed in a pre-cut PE bag with following dimensions:
    - 195mm long,
    - 51mm large
• 1 20ml sachet of ultrasound transmission gel.

Quantity box: 50

96.93.2762
Ultrasound set for continuous infusion

Sterile set for the protection of the ultrasound probe and cable when placing a catheter for continuous plexus or peripheral nerve block.

The set is supplied in soft blister pack containing:
• 1 long transparent probe/cable protective sleeve 122x15cm supplied in a precut PE bag. The folding of the protective sleeve is made in such a way to facilitate the insertion of the ultrasound probe
• 1 elastic (latex-free)
• 1 20ml sachet of ultrasound transmission gel
• 2 sponge sticks
• 3 round gallipots: 2 translucent colourless and 1 red
• 1 white absorbent towel 33x38cm.

Quantity box: 25

Nerve stimulator and accessories

5194
loco**plex** for single shot injection

loco**plex** is a stimulating needle for plexus and peripheral nerve blocks carried out by nerve stimulation.

loco**plex** has the following characteristics:
• large ergonomic hub allowing ease of handling. Its transparency makes it possible to check the absence of blood reflux during the aspiration test
• circular centimetric graduations over the entire length of the needle allow verification at any time of the length inserted. A broader mark indicates 5cm and a double mark indicates 10cm
• insulating coating over its entire length; only the bevel being conductive
• electric cable 60cm in length to keep the nerve stimulator away from the sterile area. Bevel orientation is identified by the position of electric cord on the hub.

loco**plex** has a transparent PE-lined PVC extension tube, 50cm long (priming volume: 1ml) to inject the anaesthetic solution and to visualise reflux of blood. The extension tube can be removed to directly connect the syringe onto the needle.

loco**plex** is available either with a 17° bevel or a 30° bevel.
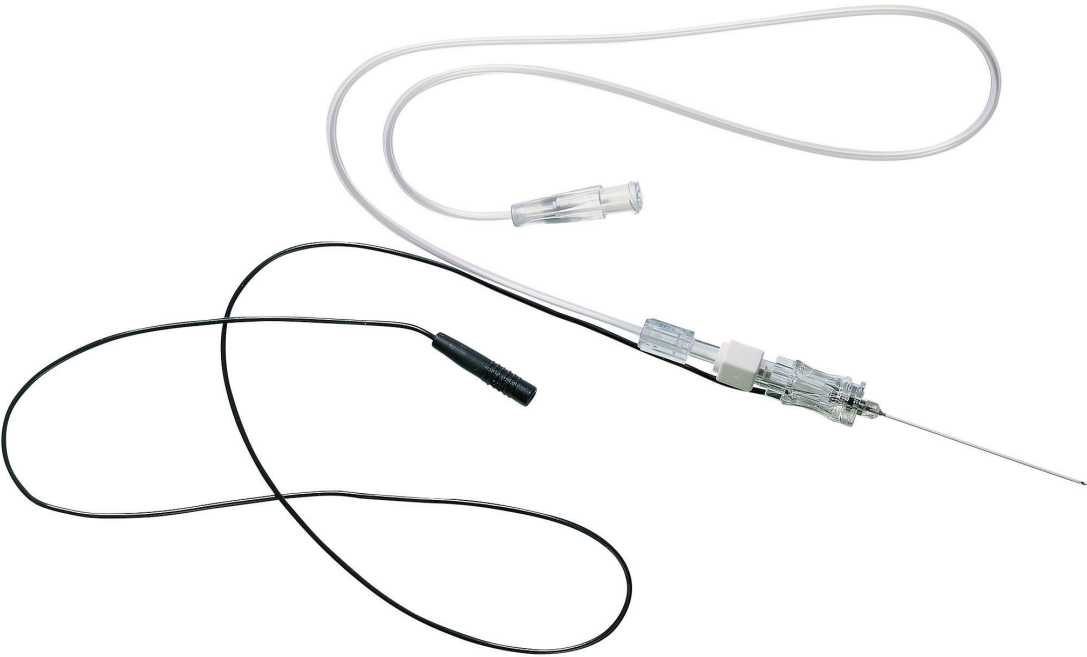
Code		G	Length mm	Ext. Ø mm	Quantity Box/Case
Bevel 17°	Bevel 30°				
5194.25	5194.253*	23	25	0.65	20/180
5194.35	5194.353*	23	35	0.65	20/180
5194.50	-	20	50	0.90	20/180
-	5194.503*	21	50	0.80	20/180
5194.85	5194.853*	21	85	0.80	20/180
5194.10	5194.103*	21	100	0.80	20/180
5194.12	5194.123	20	120	0.90	20/180
5194.15	5194.153	20	150	0.90	20/180

*Quantity box/case: 20/240

5195
techni**plex** for continuous infusion

techni**plex** is a set for continuous plexus and peripheral nerve blocks with nerve stimulating needle.

The localization of the plexus or nerve is carried out with an insulated needle which will then be used to insert the catheter.

Needle
The catheter is inserted through a puncture needle with 17°, 30° or Tuohy bevel. Centimetric graduations on needle allow quick visualisation of the length of needle introduced.
techni**plex** needle is presented with:
• An electric cord 60cm in length to keep the nerve stimulator away from the sterile area
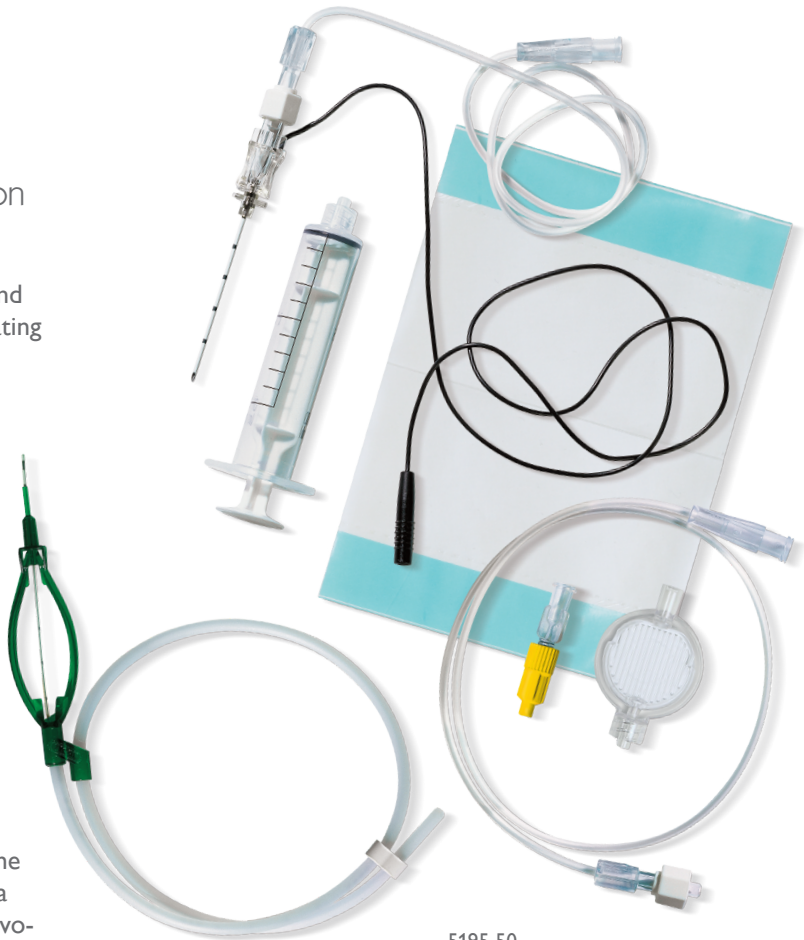• A 50cm long extension tube (priming volume: 1ml).

Catheter
The catheter has either an open distal end or a soft closed distal end with 3 lateral eyes. The catheter is available with or without stylet allowing the end user to determine the desired softness. The catheter is supplied in a protective tube with a wishbone catheter-feeder.
This catheter-feeder provides excellent 'feel' of the progression of the catheter through the needle and tissues.
The catheter features circular centimetric graduations from 1 to 20cm and a large mark to indicate when the catheter is about to pass beyond the bevel of the needle.

5195.50

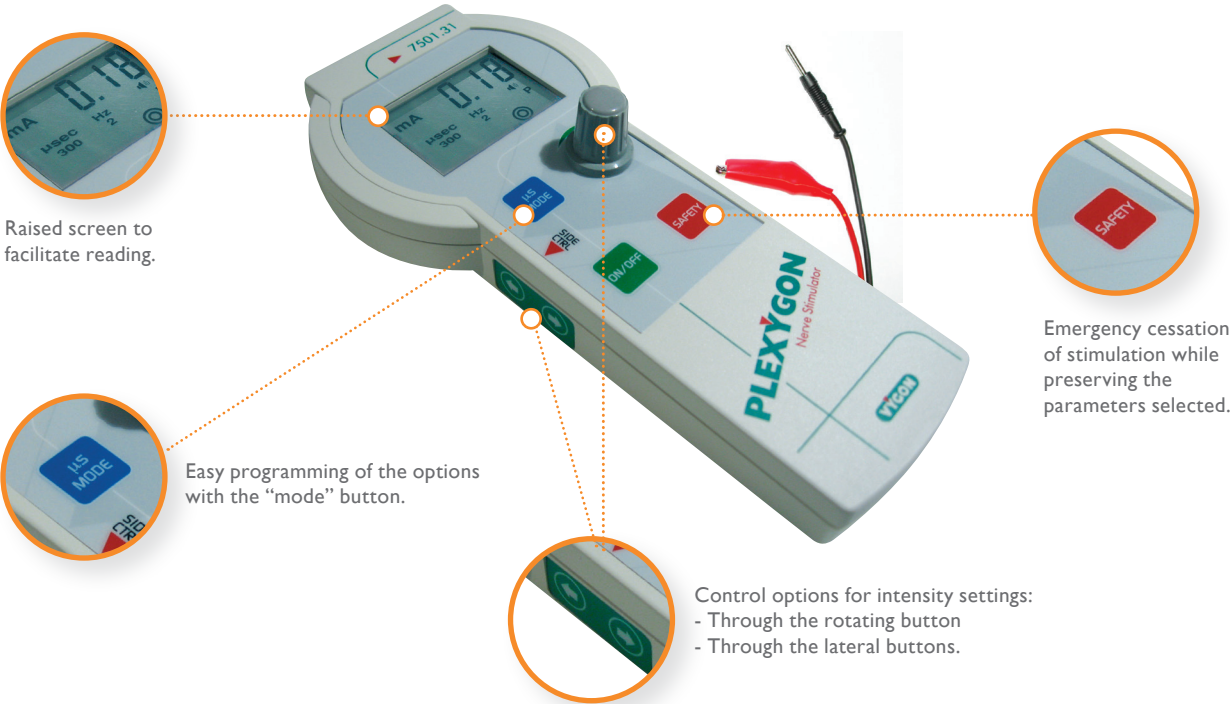Presented in a rigid blister pack containing:
• 1 needle with electric cable and extension tube
• 1 additional 50cm long extension tube (priming volume: 1ml)
• 1 transparent PEBA (polyether block amide) catheter with radiopaque line, Ø 0.45x0.85mm, 50cm long
• 1 Easy-lock catheter connector
• 1 antibacterial filter 0.2µm
• 1 Luer-lock 10ml syringe for the aspiration test
• 1 10x15cm derma**film** transparent adhesive dressing
• 1 green label to identify the type of block.

| Code | | | | Needle | | Catheter | | Quantity |
17° bevel and open distal end catheter	30° bevel and open distal end catheter	30° bevel and catheter with stylet*	Tuohy bevel and catheter with stylet*	G	Length mm	Length cm	Ext.Ø - Int.Ø mm	Box/case
-	-	-	5195.506	17	50	50	0.85 - 0.45	5/45
-	-	-	5195.106	17	100	50	0.85 - 0.45	5/45
-	-	-	5195.156	17	150	50	0.85 - 0.45	5/45
5195.35	5195.353	-	-	18	35	50	0.85 - 0.45	10/40
5195.50	5195.503	5195.5031**	-	18	50	50	0.85 - 0.45	10/40
5195.10	5195.103	5195.1031**	-	18	100	50	0.85 - 0.45	10/40
5195.12	5195.123	-	-	18	120	50	0.85 - 0.45	10/40
-	-	5195.1531**	-	18	150	50	0.85 - 0.45	5/45

* Catheter is supplied with a stylet and a soft closed distal end with 3 lateral eyes.

** Quantity box/case: 5/45

7501.31
ple**xygon**

Raised screen to facilitate reading.

Emergency cessation of stimulation while preserving the parameters selected.

Easy programming of the options with the "mode" button.

Control options for intensity settings:
- Through the rotating button
- Through the lateral buttons.

The ple**xygon** nerve stimulator is a compact device allowing nerve localization by the emission of a low intensity electric current.

Settings
• Pulse duration: 50µs, 100µs and 300µs
  Pulse duration can be modified easily while using the stimulator without having to enter the menu by pressing the "Mode-µs" button. The quantity of current delivered remains constant.
• Pulse frequency: 1Hz, 2Hz or 4Hz.

Intensity
• Choice of intensity setting:
  - Rotating notched knob allowing more precise and more rapid adjustment than a digital button.
  - Lateral button for sterile use with a protective hood, supplied separately (ref. 39.00.15).
• 2 types of measurement of the intensity of the electric current are possible:
  - mA: intensity of the current
  - nC: charge of current associated with each pulse
• Display accuracy:
  - above 0.5mA by increments of 0.1mA
  - below 0.5mA by increments of 0.02mA

ple**xygon** is supplied in a case with the battery and associated cables.

After switching on the nerve stimulator, the default stimulator configuration (300µs, 2Hz) allows it to be used immediately without any adjustments.

| ple**xygon** | | | | |
Length	Height	Width	Weight	Battery
200mm	max: 39.5mm min: 23mm	max: 94mm min: 58mm	186g without battery 232g with battery	9V

Quantity box/case: 1/10

87503.02A

plex**ygon** replacement cable
(red and black)

Dimensions: 100cm

Quantity box/case: 1/180

39.00.15

plex**ygon** transparent protective hood

Transparent protective hood enables
plex**ygon** to be used under sterile
conditions.
Dimensions: 13x40cm.

Quantity box/case: 80/320

Accessories for peripheral nerve blocks

96.90.0309
Set for dressing change for
perineural catheter

Set to change the dressing and fill the
infusion device every 48h for patients with
perineural catheters.

Presented in soft blister pack containing:
• 2 high filtration masks with elastics
• 1 hat
• 1 disposal bag
• 1 outer wrap 75x50cm
• 1 drape towel 45x45cm
• 1 Luer-lock 5ml syringe
• 10 non-woven swabs 7.5x7.5cm, 4 folds
• 4 Nitrile gloves size 7/8
• 1 Transferline transfer device
• 1 Tegaderm film dressing with
  non-adherent pad
• 1 15x20cm derma**film**
• 1 Luer-lock 50ml syringe
• 4 non-woven bands 70mmx12.5mm

Quantity box: 25

5804.21
grip**lok**®

grip**lok**® is a catheter fixation device dedicated to regional
anaesthesia applications (epidural catheter, plexus and periphe-
ral nerve catheter…). It is latex free, supplied sterile in peelable
packaging.
grip**lok**® ensures efficient and secure fixation and helps prevent
accidental removal or migration of the catheter.

Dimensions: 2.5cmx5.6cm

Quantity box/case: 50/500

Basic set

199.20
Basic Set

This procedure pack contains the essential items needed for a number of common procedures including lumbar puncture, epidural anaesthesia, liver biopsy, etc.

Presented in soft blister pack containing:
- 1 tray
- 1 each syringe Luer slip 2.5ml, 5ml and 10ml
- 1 aperture drape (opening 7x12cm) with adhesive edge 63x80cm
- 1 gallipot
- 1 prep forceps
- 4 ball swabs (small)
- 2 ball swabs (large)
- 1 filter needle 5µm, 18G
- 2 hypodermic needles 25G and 21G
- 1 absorbent towel 33x38cm
- 1 outer wrap 75x90cm.

Quantity box: 30

199.30
Basic spinal Set

This procedure pack contains the essential items needed for spinal anaesthesia.

Presented in soft blister pack containing:
- 1 tray
- 1 Whitacre needle 25G, 90mm
- 1 introducer needle 20G, 38mm - with stainless steel hub
- 1 each syringe Luer 3ml, 5ml and 10ml
- 1 adhesive fenestred drape 80 x 100cm
- 1 gallipot
- 1 forceps (kocher type)
- 4 ball swabs (small)
- 2 ball swabs (large)
- 1 filter needle 5µm, 18G
- 2 hypodermic needles 25G and 21G
- 1 towel 33 x 38cm
- 1 outer wrap 75 x 90cm.

Quantity box: 20

VYSET® Custom packs

Why choose customisation?

Customisation with Vyset enables you to create a pack specific to your requirements, standardising insertion procedures and ensuring maximum barrier precautions, therefore reducing the associated risk of infection.

Saving time and money
• Reducing preparation time
• Improving stock management
• Reducing waste

Improving safety
• Reducing the risk of infection
• Reducing the risk of errors
• Improving working conditions
• Simplifying procedures which helps in emergency cases or when a practitioner works alone
• Traceability (one label + barcode)

The Vygon expertise
• Assembly and sterilisation in our own facilities in Europe
• Selection of only high quality medical devices
• Sales teams at your disposal to provide any additional training, help and advice needed to ensure your pack is a success
• Continuous monitoring of usage rates.

VYSET® in regional anaesthesia

VYSET® provides all the components/devices needed for a procedure under aseptic conditions.
All needles and catheters dedicated to peripheral nerve blocks, epidural, combined spinal-epidural, spinal anaesthesia and lumbar puncture can be supplied in VYSET® with following devices:
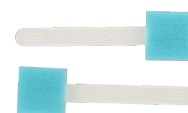
Transparent drape with a large fenestration
To scan the puncture area.

Adjustable drape 2 fenestrations
Can be used for upper and lower limbs.

Sponge sticks

Ultrasound transmission gel
Compact - does not stick

Gallipots
Different colours to differenciate drugs from desinfectant.

Safe hypodermic needles
To avoid needle-stick injuries.

Short cover

Probe covers

Long cover

Adhesive cover: AD Cover
To avoid using gel between the probe and the prove cover.

For more information and for the set creation, feel free to contact your Vygon representative.

Vygon PCA - Patient controlled analgesia

7301
freedom5

Vygon PCA is a single-use mechanical device for patient-controlled analgesia.
freedom5 has been specially designed for pain management in the Accident and Emergency department and for the treatment of post-operative pain. This product is also indicated for pain treatment of patients suffering from sickle cell disease.
It can be easily set-up by healthcare personnel and is extremely simple for the patient to use: if he feels pain, all he has to do is press the lever. **freedom**5 allows the patient to self-administer a pre-set quantity of intravenous morphine equivalent to:
• 0.5ml for code 7301.05, 7301.50 and 7301.501. The lock-out for bolus reconstitution is 5 minutes.
• 1ml for models 7301.12 and 7301.10. The lock-out for bolus reconstitution is 7 minutes.
As the bolus reservoir is under negative pressure downloading is not possible.

The **freedom**5 kit contains:
• 1 PCA reservoir carrier with inspection window.
  A check valve prevents any reflux into the bolus chamber. This valve only opens with positive pressure applied by the user on the lever.
• 1 calibrated reservoir (55ml). The reservoir must be locked within the carrier making sure that the graduations of the reservoir are visible in the inspection window of the carrier
• 1 capping device with lever
• 1 attachment cord
• 1 polyethylene storage bag
• 1 female/female Luer-lock adaptor (code 892) for filling the reservoir with a syringe
• 1 female Luer-lock obturator (code 888) for temporary capping of a filled reservoir
• 1 label for the PCA reservoir carrier
• 1 extension tube with single-lumen or double-lumen with detailed characteristics in the table below.

| Code | Bolus | | | | Extension tube | | | | | | | Quantity |
| | | | | | | Lumen 1 | | | | Lumen 2 | | |
Code	Vol. ml	Reconstitu-tion bolus min	Length cm	Priming volume ml	Nb of lumen	Antibac-terial and air-eli-minating filter	Anti-siphon valve	Clamp	bionector	Non-return valve	bionector	Box/case
7301.10	1	7	125	2.7	1	X	X			-	-	1/20
7301.12	1	7	90/5	1.2/ 0.37	2	X	X			X		1/20
7301.05	0.5	5	125	2.7	1	X		X		-	-	1/20
7301.50	0.5	5	125	2.7	1	X	X			-	-	10/10
7301.501	0.5	5	90/5	1.2/0.38	2	X	X	X		X	X	10/10

7302.60/62
Refill kit for PCA

If necessary, **freedom**5 can be refilled twice. In this case, a complete refill kit is available.
The complete refill kit code 7302.60 (for PCA code 7301.10 or 7301.12) and code 7302.62 (for PCA code 7301.05, 7301.50 or 7301.501) are presented in soft blister pack containing:
• 1 PCA lockable capping device with lever and cord
• 1 55ml calibrated reservoir
• 1 female/female Luer-lock adaptor
• 1 female Luer-lock obturator.

Quantity box/case: 1/18 for 7302.60 - 10/60 for 7302.62

7302.01/02
Simplified refill kit for PCA

The simplified refill kit code 7302.01 (for PCA code 7301.10 or 7301.12) and 7302.02 (for PCA code 7301.05, 7301.50 or 7301.501) are presented in soft blister pack containing:
• 1 PCA lockable capping device with lever and cord
• 1 female/female Luer-lock adaptor.

Quantity box/case: 10/90

7302.90
Reservoir for PCA

The 55ml graduated reservoir for PCA refill is also available separately.

Quantity box/case: 5/60

ANAESTHESIA EMERGENCY

For further information, please contact: questions@vygon.com
The specifications shown in this leaflet are for information only
and are not, under any circumstances, of a contractual nature.

VYGON

www.vygon.com