

# Umbilical Catheters

The safest choice for short-term vascular access in neonates

**NEWBORN**  
**< 1kg**

**NEWBORN**  
**> 1kg**

A range of single and double lumen umbilical catheters for both venous and arterial use. Patient safety has been improved by the use of polyurethane, which, unlike traditional PVC catheters, remains inert for the life of the catheter.

The use of double lumen venous umbilical catheters in critically ill neonates is well tolerated and decreases the need for additional venous catheters.<sup>(1)</sup>

## Features and Benefits

### Polyurethane catheter

remains firm during insertion but softens at body temperature, minimising vessel trauma and enhancing stay time.

### X-ray opaque

for accurate tip location without additional contrast medium.

### Numerical graduations

aid accurate tip placement.

### Atraumatic tip

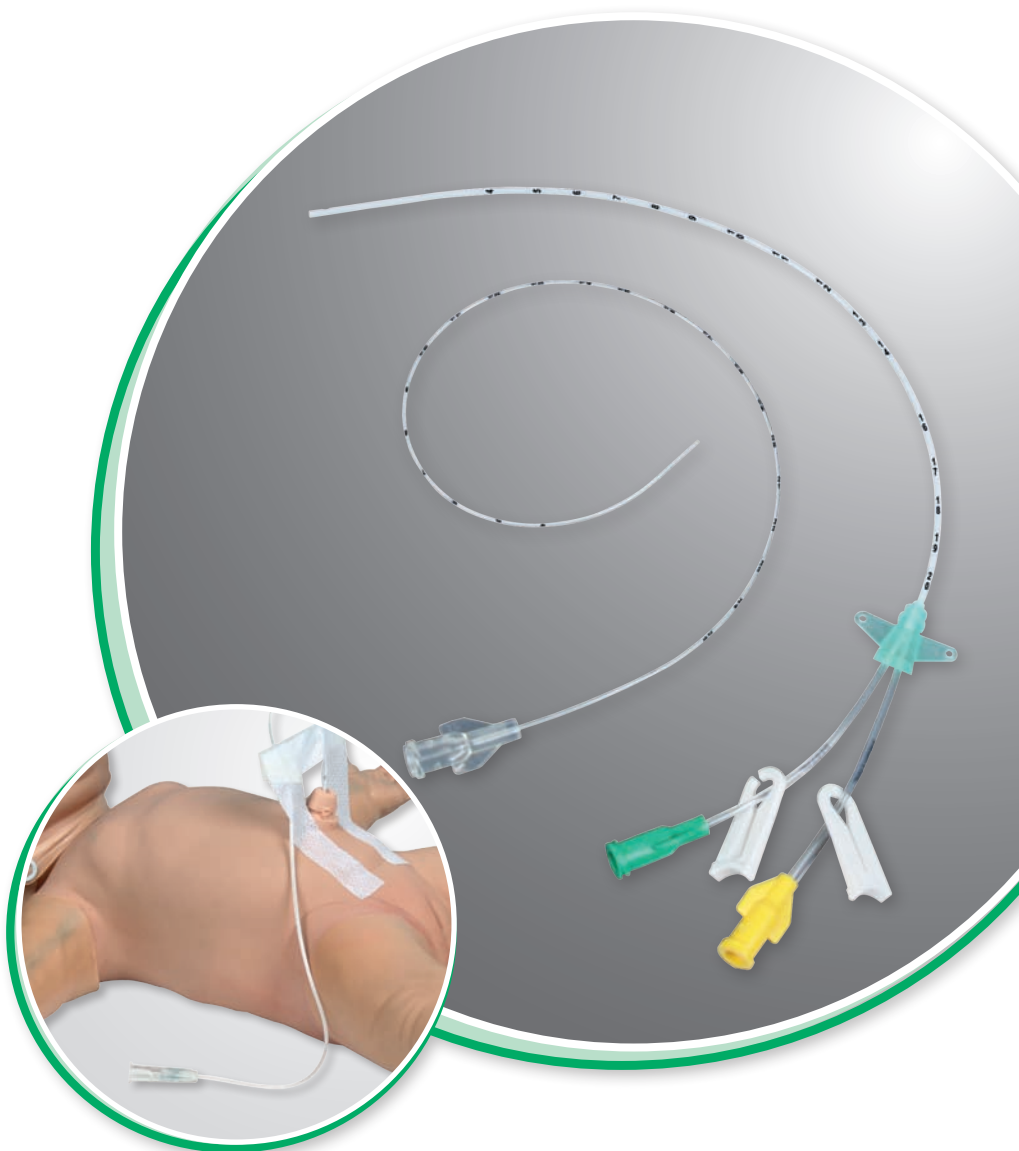
reduces risk of vessel damage during insertion.

### Double lumen venous catheter

decreases the need for additional IV access.

### Slide clamps (on double lumen only)

for line management and safety.



## Ordering Information

Product Codes		Description	Size (Fr)	Length (cm)	Priming Volume (ml)	Flow Rate (ml/min)*	Unit of Sale
Vygon	NPC						
1270.02	FSY023	Single lumen PUR catheter with 1 x three-way tap	2.5	30	0.21	2.35	8
1270.03	FSY024	Single lumen PUR catheter with 1 x three-way tap	3.5	40	0.34	11.10	8
1270.04	FSY025	Single lumen PUR catheter with 1 x three-way tap	4.0	40	0.36	11.30	20
1270.05	FSY026	Single lumen PUR catheter with 1 x three-way tap	5.0	40	0.46	24.00	20
1270.08	FSY027	Single lumen PUR catheter with 1 x three-way tap	8.0	40	0.84	79.00	20
1272.14	FSY028	Double equal lumen PUR catheter with 1 x three-way tap	4.0	20	0.26 / 0.26	15.00	10

\*Tested to ISO 10555



### Reference

1. Dr A. Soe and R. Buckle. Specialist Clinical Audit Programme for London, Kent, Surrey and Sussex. March 2004.

Insertion technique overleaf

# Umbilical Catheters

The safest choice for short-term vascular access in neonates

**NEWBORN**  
**< 1kg**

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## Insertion Technique

### General

1. Use strict aseptic technique and ensure maximum barrier precautions, such as by using the umbilical placement pack (80.199.695), cleanse the anterior abdominal wall and cord stump.
2. Loosely tie a piece of ribbon gauze around the cord stump to control bleeding. Cut the umbilical cord at its base, tangentially to the abdomen, remove any clots which may obstruct the vessel lumen.
3. Arteries are small, thick-walled spiralling vessels, whilst the vein is larger and thin-walled (see diagram 1).
4. Prime the catheter, and if required dilate the vessel using iris forceps (see diagram 1).
5. Advance the catheter using short, smooth strokes.

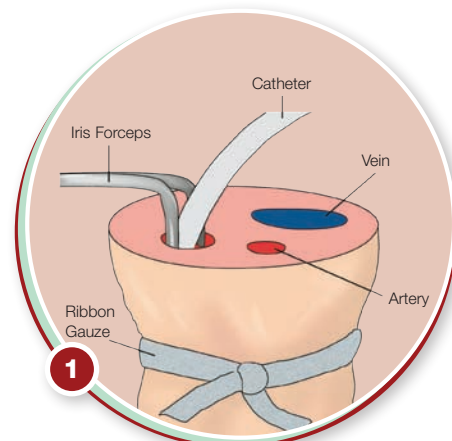


Diagram 1 - Catheter insertion

### Arterial Catheterisation

1. Place the catheter tip either at the upper aorta above the diaphragm, X-ray T6-T10 (see table 1 and diagram 2) or in the lower aorta below the renal arteries, X-ray L4-L5 (see table 1 and diagram 2).
2. Check the legs and buttocks for pallor or blueness and palpate the femoral pulses.
3. Confirm catheter location by X-ray.
4. Fixate the catheter.

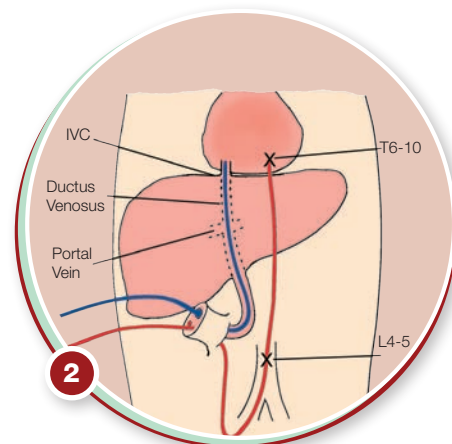


Diagram 2 - Catheter tip location

### Venous Catheterisation

1. Locate the catheter tip into the inferior vena cava via the ductus venosus (see diagram 2).

**Please note:** Any resistance to the advancement of the catheter must lead to immediate withdrawal of the catheter by 2-3cm before any new attempt is made. Do not cover the umbilicus with any dressing as the cord air dries in the incubator.

**Catheter removal:** Withdraw the catheter slowly and gently. If resistance is felt, stop and identify the cause before continuing.

Table 1

Umbilical Artery Catheter Positions		
Shoulder umbilicus length (cm)	Umbilicus lower aorta length (cm)	Umbilicus upper aorta length (cm)
8	4	10
10	5-6	12
12	6-7	15
14	8	18
16	10	20
18	10-11	22

**Warnings:** Avoid the use of alcohol or acetone to clean the catheter as this may result in catheter damage and premature removal. Avoid the use of small syringes less than 10ml for bolus injections as they generate high pressures which may result in catheter damage.



# 28G Premicath

Neonatal catheter (PUR) with choice of introducer



28G Premicath has been designed specifically for use with babies under 1kg who require the smallest catheters. As with our other polyurethane catheters Premicath utilises thin-wall technology to enable optimum flow rates to be achieved.

needle introducer, which is ideal for use in the tiniest of veins, or the slightly larger Microflash peelable cannula which provides the added safety and security of advancing the catheter through plastic and the ability to completely remove the cannula after line insertion.

Clinicians have the choice of either a small breakaway

**Features and Benefits**

**Polyurethane catheter**  
remains firm during insertion but softens at body temperature, minimising vessel trauma and enhancing stay time.

**X-ray opaque**  
for accurate tip location without additional contrast medium.

**Catheter graduations every cm**  
aid accurate tip placement.

**Small 28G catheter**  
for the smallest veins.

**One-piece catheter construction**  
simplifies insertion.

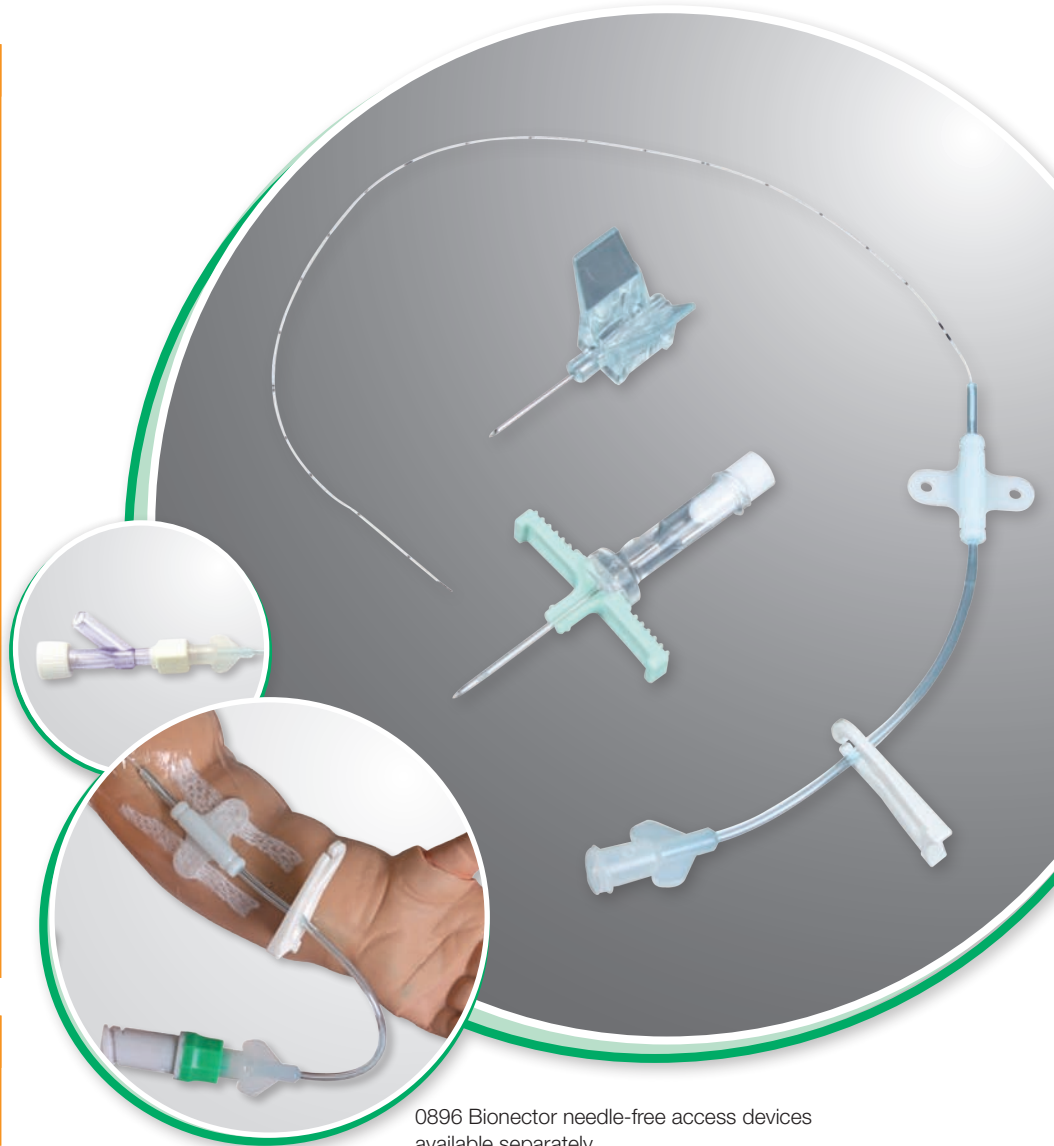
**Integral extension with wing**  
permits secure catheter fixation, reducing the risk of mechanical phlebitis.

**Choice of introducer:**

- **Microflash introducer**  
unique split cannula, allows easy removal from the PICC line, and eyelet gives rapid visibility of flashback.
- **Small 24G breakaway needle**  
for small veins.

**Kit Contents**

1 x Catheter                      1 x Microflash introducer  
or breakaway needle



0896 Bionector needle-free access devices available separately

**Ordering Information**

Product Codes		Description	Size (G)	Length (cm)	Priming Volume (ml)	Flow Rate (ml/min)*	Introducer Information		Unit of Sale
Vygon	NPC						Type	Size (OD-L-G)	
1261.21	FSU221	X-ray opaque graduated catheter	28	20	0.15	0.5	Breakaway needle	0.7-19-24	10
1261.22	FSU220	X-ray opaque graduated catheter	28	20	0.15	0.5	Microflash	1.8-18-20	10
1261.208	FSU263	X-ray opaque graduated PUR catheter with stylet	28	20	0.06**	0.5	Microflash	1.8-18-20	10
7366.510	FTR438	Breakaway needle only	24				Breakaway needle	0.7-19-24	25
7370.19	FSP244	Microflash introducer only	20				Microflash	1.8-18-20	25

\*Tested at 1bar/14.5psi    \*\*with stylet in place



## Insertion Technique

### Preparation for Catheter Insertion

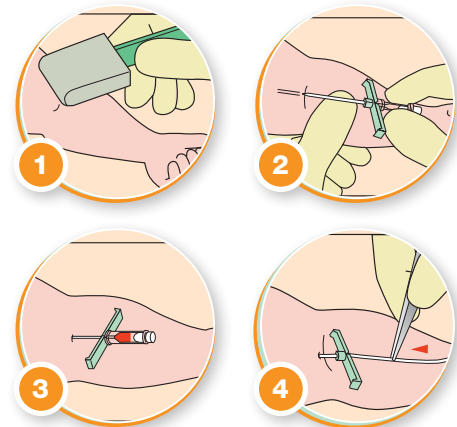
Open using aseptic technique. Add any sterile supplementary equipment needed. Ensure maximum barrier precautions, such as by using the long line placement pack (80.199.519). Put on sterile gloves and prepare tray contents ready for catheter insertion:

1. Draw up saline and heparin flushes using a filter needle or straw to remove particulate material.
2. Flush catheter prior to insertion.

### Microflash Cannula Insertion Technique

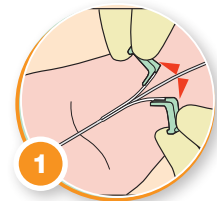
1. Select, prepare, clean (see diagram 1) and drape site of venepuncture. Apply tourniquet.
2. Perform venepuncture with the peelable cannula provided (see diagram 2).
3. Advance cannula until venepuncture is confirmed by free flowing blood into the flashback chamber (see diagram 3). **Please note:** With Microflash, you may see flashback from the needle eyelet. Also, the cannula can be syringe-mounted if preferred.
4. Release tourniquet, advance cannula off the introducer needle and advance gently into vessel. **Please note:** To avoid excessive bleeding or possible air aspiration place a gloved finger over the cannula opening following needle withdrawal. Insert catheter through cannula using non-toothed forceps and short, steady strokes (see diagram 4).

Should catheter advancement become difficult, infuse a little fluid whilst simultaneously advancing the catheter. This has the effect of dilating the vessel distal to the catheter tip.



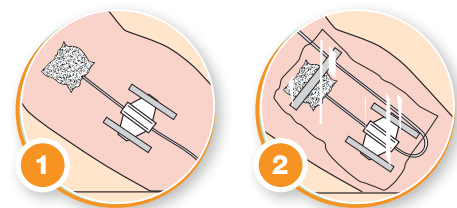
### Premicath Peelable Cannula Removal

1. Secure the catheter by applying light finger pressure on the catheter beyond the cannula, and slowly withdraw the cannula. Carefully peel the cannula apart whilst maintaining forward pressure on the catheter, taking care not to dislodge the catheter from the vein. Finally advance the catheter to the desired position (see diagram 1).



### Premicath Catheter Fixation

1. Anchor the catheter using adhesive skin strips. Clean the insertion site with gauze swab. Place small swab over insertion site (see diagram 1).
2. Loop the extension tube back beside this gauze and apply a transparent dressing (see diagram 2). Light pressure over the insertion site should be maintained for 24 hours. Change as per hospital protocol.

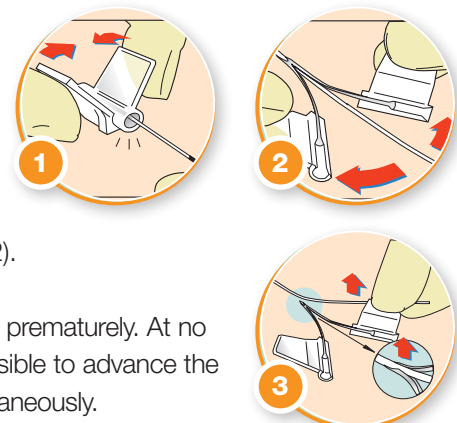


### Premicath Breakaway Needle Removal

1. Follow the general guidelines as per the peelable cannula insertion technique. Following venepuncture advance the catheter through the breakaway needle and withdraw the needle from the vein. Pinch needle wings firmly together to initiate breaking of the needle (see diagram 1).
2. Peel needle smoothly until the needle halves are held together only at the tip. It is not necessary to entirely separate both halves of the needle (see diagram 2).
3. Lift catheter carefully out of needle lumen (see diagram 3).

**Caution:** Do not grip the needle wings tightly as this may cause the needle to break prematurely. At no time should the catheter be withdrawn back through the needle. If it becomes impossible to advance the catheter to a satisfactory position, the needle and catheter must be withdrawn simultaneously.

**Warnings:** Avoid the use of alcohol or acetone to clean the catheter as this may result in catheter damage and premature removal. Avoid the use of small syringes less than 10ml for bolus injections as they generate high pressures which may result in catheter damage.



# 24G Nutriline Twin-Flo

Neonatal dual lumen catheter with Microflash introducer

**NEWBORN**  
**< 1kg**

**NEWBORN**  
**> 1kg**

24G Nutriline Twin-Flo has been designed specifically for use with babies who require multiple infusions. As with our other polyurethane catheters Nutriline utilises thin-wall technology to enable optimum flow rates to be achieved.

The kit for catheter insertion includes Vygon's Microflash introducer. This provides additional safety and security of advancing the catheter through plastic and the ability to completely remove the cannula after line insertion.

The Nutriline Twin-Flo dual lumen design offers enhanced fluid management.

## Features and Benefits

### Polyurethane catheter

remains firm during insertion but softens at body temperature, minimising vessel trauma and enhancing stay time.

### X-ray opaque

for accurate tip location without additional contrast medium.

### Catheter graduations every cm

aid accurate catheter placement.

### Dual lumen to tip

avoids incompatible drugs mixing.

### One-piece construction

simplifies insertion.

### Slide clamps

for easier line management and safety.

### Integral extension with wing

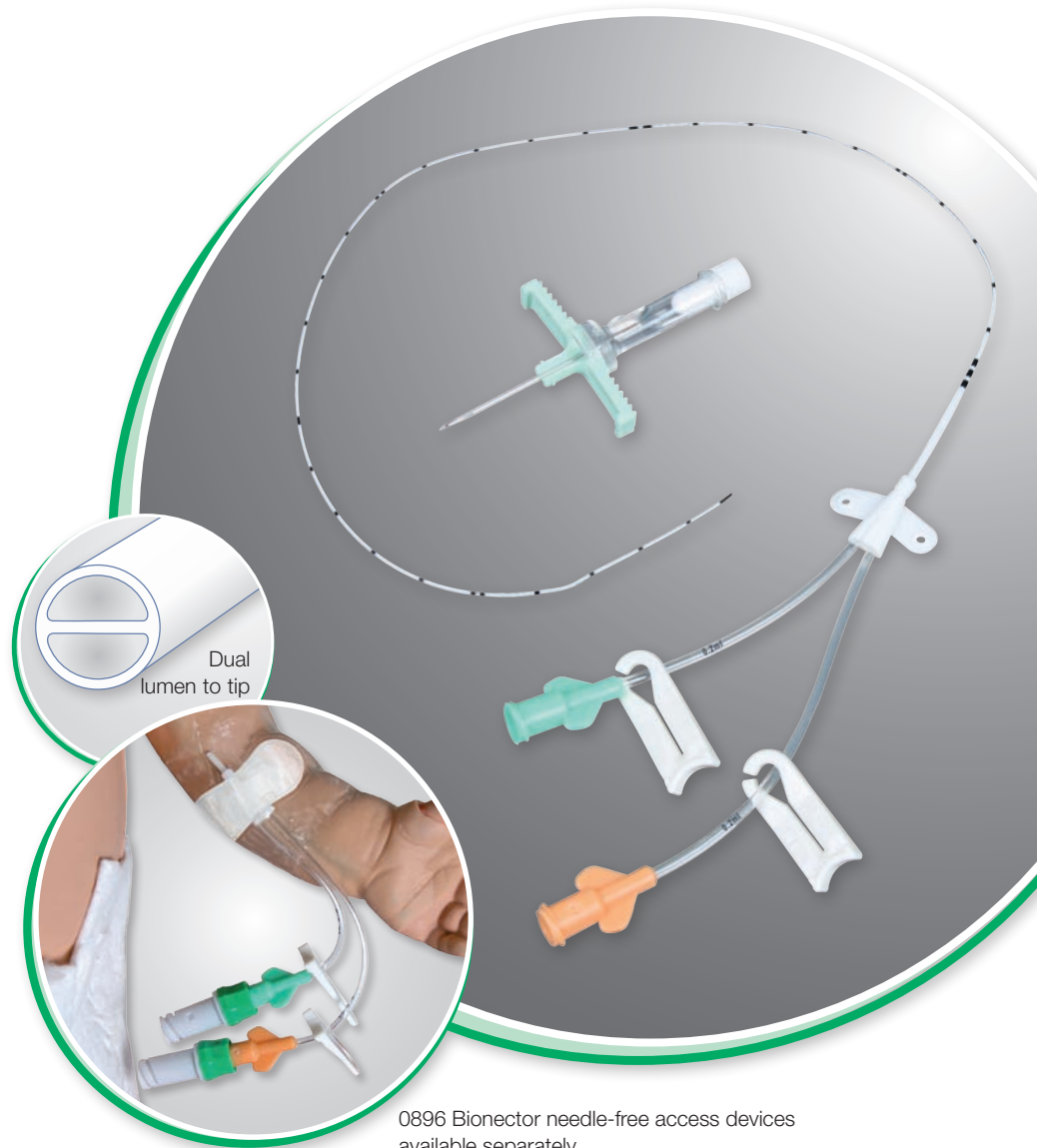
permits secure catheter fixation, reducing the risk of mechanical phlebitis.

### Microflash introducer

unique split cannula, allows easy removal from the PICC line, and eyelet gives rapid visibility of flashback.

### Colour coded hubs

for easy identification of the lumens.



0896 Bionector needle-free access devices available separately

## Kit Contents

- 1 x Catheter
- 1 x Neonatal Grip-lok™
- 1 x Microflash introducer
- 1 x Tape measure

## Ordering Information

Product Codes		Description	Size (G)	Length (cm)	Priming Volume (ml)	Flow Rate (ml/min)*	Introducer Information		Unit of Sale
Vygon	NPC						Type	Size (OD-L-G)	
1252.235	FSU252	X-ray opaque graduated dual lumen PUR catheter	24	30	2 x 0.2	2 x 1.45	Microflash	1.8-18-20	10
7370.19	FSP244	Microflash introducer	20				Microflash	1.8-18-20	25

\*Tested at 1 bar/14.5psi

# 24G Nutriline Twin-Flo

Neonatal dual lumen catheter with Microflash introducer

NEWBORN  
< 1kg

NEWBORN  
> 1kg

## Insertion Technique

### Preparation for Catheter Insertion

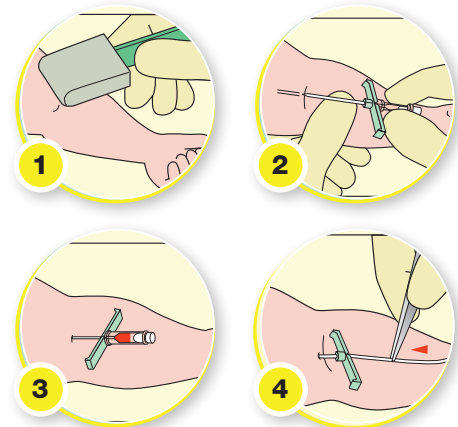
Open using aseptic technique. Add any sterile supplementary equipment needed. Ensure maximum barrier precautions, such as by using the long line placement pack (80.199.519). Put on sterile gloves and prepare tray contents ready for catheter insertion:

1. Draw up saline and heparin flushes using a filter needle or straw to remove particulate material.
2. Flush catheter prior to insertion.

### Microflash Peelable Cannula Insertion Technique

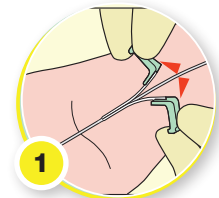
1. Select, prepare, clean (see diagram 1) and drape site of venepuncture. Apply tourniquet.
2. Perform venepuncture with the peelable cannula provided (see diagram 2).
3. Advance cannula until venepuncture is confirmed by free flowing blood into the flashback chamber (see diagram 3). **Please note: With Microflash you may see flashback from the needle eyelet.** The cannula can also be syringe-mounted if preferred.
4. Release tourniquet, advance cannula off the introducer needle and advance gently into vessel. **Please note: To avoid excessive bleeding or possible air aspiration place a gloved finger over the cannula opening, following needle withdrawal.** Insert catheter through cannula using non-toothed forceps and short, steady strokes (see diagram 4).

Should catheter advancement become difficult, infuse a little fluid whilst simultaneously advancing the catheter. This has the effect of dilating the vessel distal to the catheter tip.



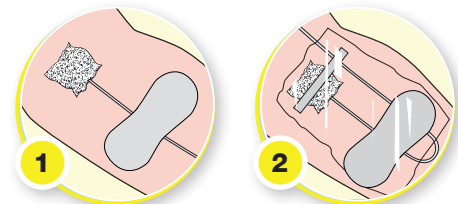
### Nutriline Twin-Flo Peelable Cannula Removal

1. Secure the catheter by applying light finger pressure on the catheter beyond the cannula and slowly withdraw the cannula. Carefully peel the cannula apart whilst maintaining forward pressure on the catheter, taking care not to dislodge the catheter from the vein. Finally advance the catheter to the desired position (see diagram 1).



### Nutriline Twin-Flo Catheter Fixation

1. Anchor the catheter using adhesive neonatal Grip-Lok™. Clean the insertion site with gauze swab. Place small swab over insertion site if necessary (see diagram 1).
2. Loop the extension tube back beside this gauze and apply a transparent dressing (see diagram 2). Light pressure over the insertion site should be maintained for 24 hours. Change as per hospital protocol.



**Warnings:** Avoid the use of alcohol or acetone to clean the catheter as this may result in catheter damage and premature removal. Avoid the use of small syringes less than 10ml for bolus injections as they generate high pressures which may result in catheter damage.

# 24G Nutriline

Peripherally inserted catheter with Microflash introducer

**NEWBORN**  
**> 1kg**

**CHILD**  
**> 1yr**

24G Nutriline's one-piece catheter construction provides clinicians with a high degree of safety. The peelable introducer cannula enables the catheter to be safely advanced through plastic. Additional security is provided by a small primary wing to help minimise the risk of catheter movement and kinking.

thin-wall technology to enable optimum flow rates to be achieved.

Clinicians have a choice of different catheter lengths to ensure accurate tip placement for most IV access sites.

Therapy areas include long-term IV antibiotics and TPN.

As with our other polyurethane catheters Nutriline utilises

## Features and Benefits

### Polyurethane catheter

remains firm during insertion but softens at body temperature, minimising vessel trauma and enhancing stay time.

### X-ray opaque

for accurate tip location without additional contrast medium.

### Catheter graduations every cm

aid accurate placement of catheter.

### One-piece construction

simplifies insertion.

### Integral extension with wing

permits secure catheter fixation, reducing the risk of mechanical phlebitis.

### Slide clamp

for line management and safety.

### Microflash introducer

unique split cannula, allows easy removal from the PICC line, and eyelet gives rapid visibility of flashback.

## Kit Contents

2 x Ball swabs	1 x Filter straw 5µm
1 x Gallipot	1 x Sterile field/outer wrap
1 x Sponge stick	
1 x Microflash introducer	1 x Fenestrated drape
1 x Injection membrane	
1 x 10ml Syringe	



0896 Bionector needle-free access devices available separately

## Ordering Information

Product Codes		Description	Size (G)	Length (cm)	Priming Volume (ml)	Flow Rate (ml/min)*	ID-OD (mm)	Introducer Size (OD-L-G)	Unit of Sale
Vygon	NPC								
1352.152	FSQ337	X-ray opaque graduated polyurethane catheter	24	15	0.18	3.0	0.3-0.6	1.8-18-20	10
1352.302	FSQ338	X-ray opaque graduated polyurethane catheter	24	30	0.21	2.0	0.3-0.6	1.8-18-20	10
7370.19	FSP244	Microflash introducer	20					1.8-18-20	25

\*Tested at 1 bar/14.5psi

# 24G Nutriline

Peripherally inserted catheter with Microflash introducer

NEWBORN  
> 1kg

CHILD  
> 1yr

## Insertion Technique

### Preparation for Catheter Insertion

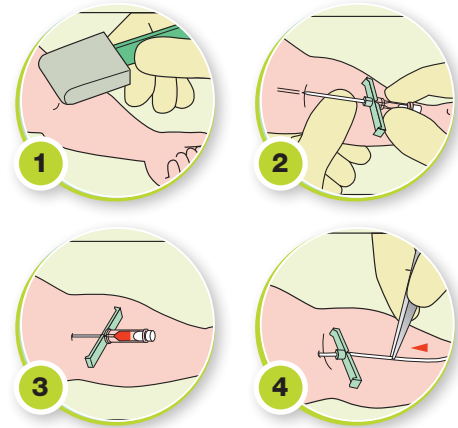
Open using aseptic technique. Add any sterile supplementary equipment needed. Ensure you are using maximum barrier precautions. Put on sterile gloves, prepare tray contents ready for catheter insertion:

1. Draw up saline and heparin flushes using a filter needle or straw to remove particulate material..
2. Flush catheter prior to insertion.

### Microflash Cannula Insertion Technique

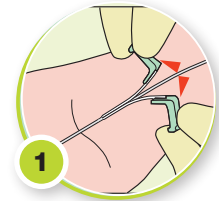
1. Select, prepare, clean (see diagram 1) and drape site of venepuncture. Apply tourniquet.
2. Perform venepuncture with the peelable cannula provided (see diagram 2).
3. Advance cannula until venepuncture is confirmed by free flowing blood into the flashback chamber (see diagram 3). **Please note: With Microflash you may see flashback from the needle eyelet.** The cannula can also be syringe-mounted if preferred.
4. Release tourniquet, advance cannula off the introducer needle and advance gently into vessel. **Please note: To avoid excessive bleeding or possible air aspiration place a gloved finger over the cannula opening following needle withdrawal.** Insert catheter through cannula using non-toothed forceps and short, steady strokes (see diagram 4).

Should catheter advancement become difficult, infuse a little fluid whilst simultaneously advancing the catheter. This has the effect of dilating the vessel distal to the catheter tip.



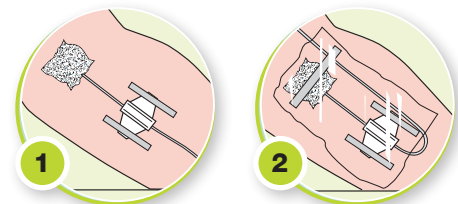
### Nutriline Peelable Cannula Removal

1. Secure the catheter by applying light digital finger pressure on the catheter beyond the cannula, and slowly withdraw the cannula. Carefully peel the cannula apart whilst maintaining forward pressure on the catheter, taking care not to dislodge the catheter from the vein. Finally advance the catheter to the desired position (see diagram 1).



### Nutriline Catheter Fixation

1. Anchor the catheter using adhesive skin strips. Clean the insertion site with gauze swab. Place small swab over insertion site if necessary (see diagram 1).
2. Loop the extension tube back beside this gauze and apply a transparent dressing (see diagram 2). Light pressure over the insertion site should be maintained for 24 hours. Change as per hospital protocol.



**Warnings:** Avoid the use of alcohol or acetone to clean the catheter as this may result in catheter damage and premature removal. Avoid the use of small syringes less than 10ml for bolus injections as they generate high pressures which may result in catheter damage.



# 24G ECC

Manufactured from soft traditional silicone

**NEWBORN**  
**> 1kg**

**CHILD**  
**> 1yr**

24G ECC was Vygon's first purpose-designed neonatal PICC line. The soft silicone catheter has depth graduations to aid insertion, and sits comfortably in the vessel during use. Its two-part design allows the use and safe removal of the introducer winged needle.

The ECC catheter is probably the most well recognised paediatric catheter in the world today, enjoying over 25 years of unrivalled success.

## Features and Benefits

### Soft biocompatible silicone

enhances stay time.

### X-ray opaque

for accurate tip location without additional contrast medium.

### Catheter graduations every cm

aid accurate catheter placement.

### Integral extension

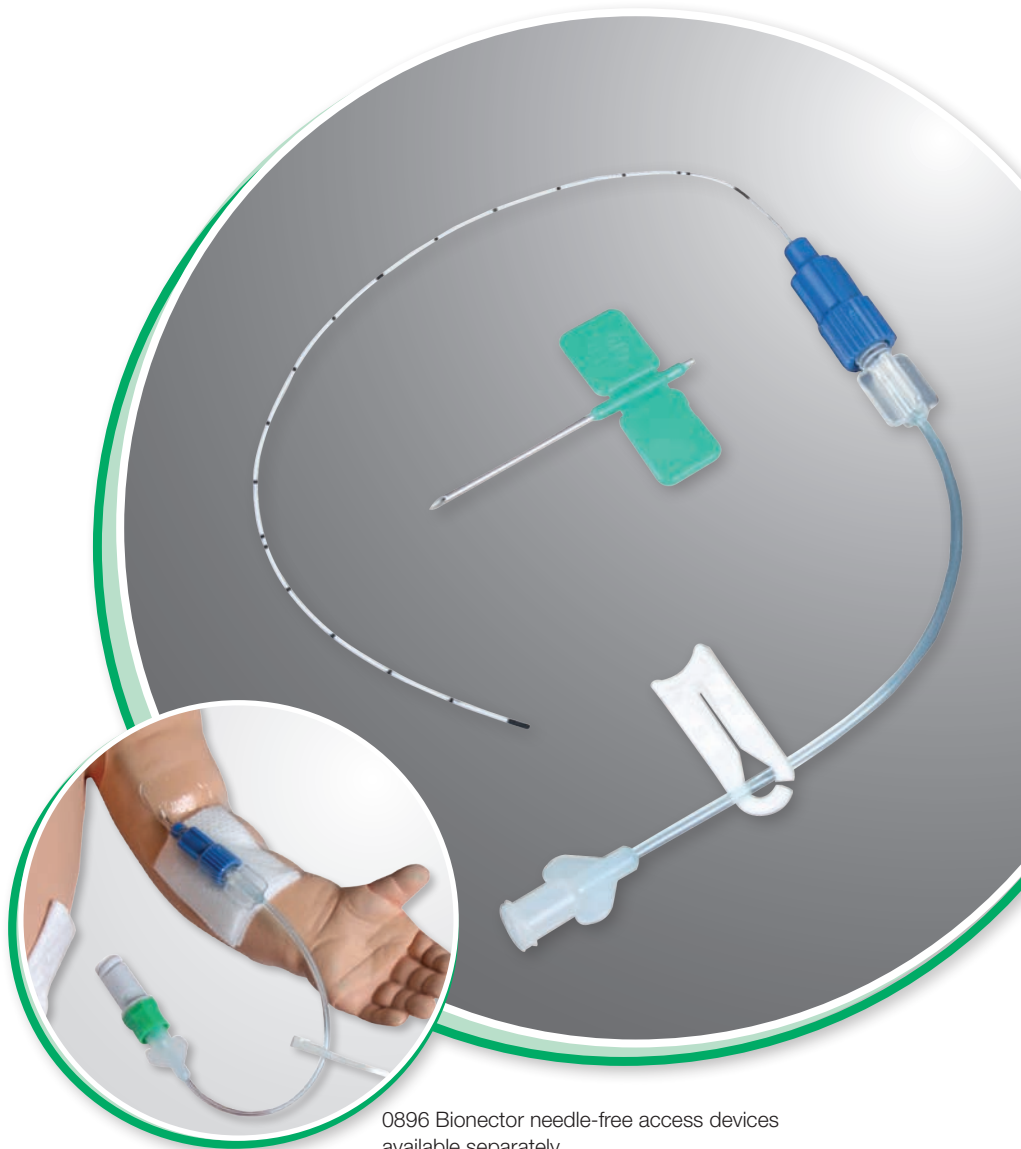
limits catheter movement, reducing the risk of mechanical phlebitis.

### Detachable hub

allows complete removal of introducing needle.

### Different length catheters

ensure accurate tip placement.



0896 Bionector needle-free access devices available separately

## Kit Contents

1 x Catheter      1 x Winged needle

## Ordering Information

Product Codes		Description	Size (G)	Needle Size (G)	Length (cm)	Priming Volume (ml)	Flow Rate (ml/min)*	Flow Rate (ml/min)**	Unit of Sale
Vygon	NPC								
2184.015	FSY090	X-ray opaque graduated silicone catheter	24	19	15	0.12	0.6	5.8	30
2184.00	FSY088	X-ray opaque graduated silicone catheter	24	19	30	0.13	0.5	5.0	30
2184.005	FSY089	X-ray opaque graduated silicone catheter	24	19	50	0.15	0.4	4.0	30
0812.000		Spare extension and compression hub							25

\*Tested to ISO 10555

\*\*Tested at 14.5psi

## Insertion Technique

**Note:** Only use needle supplied.

Check catheter patency by flushing.  
Unscrew compression hub (**do not separate**) and remove catheter ready for use.

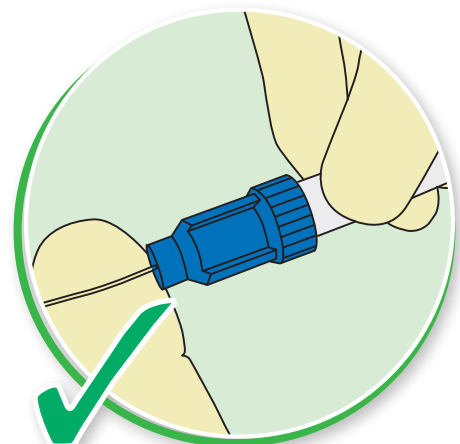
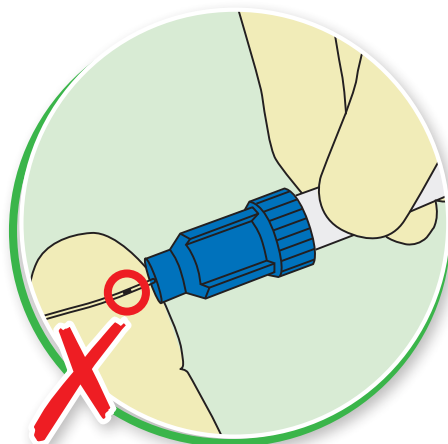
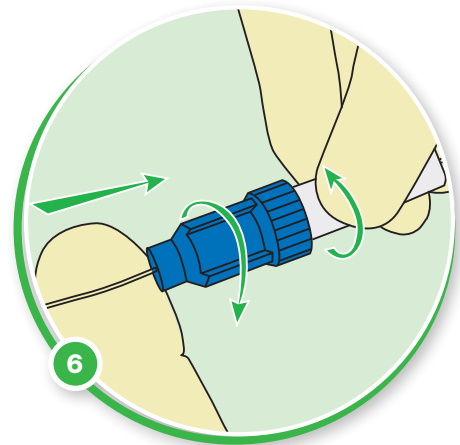
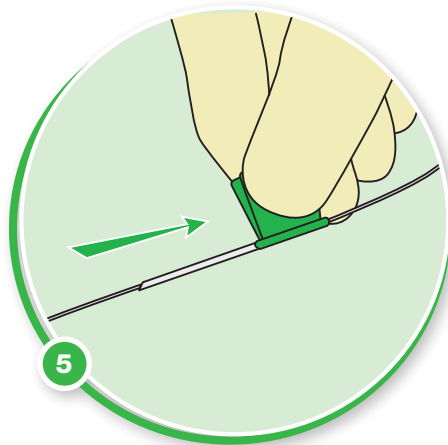
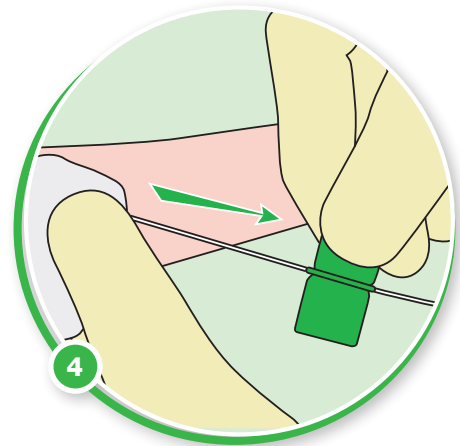
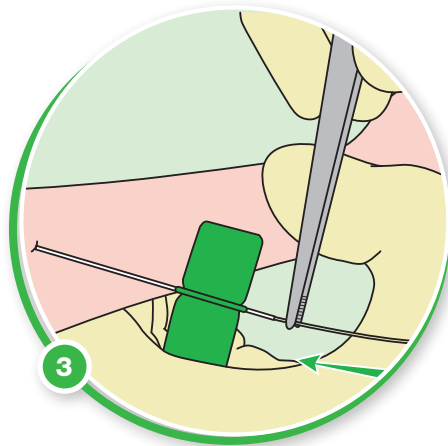
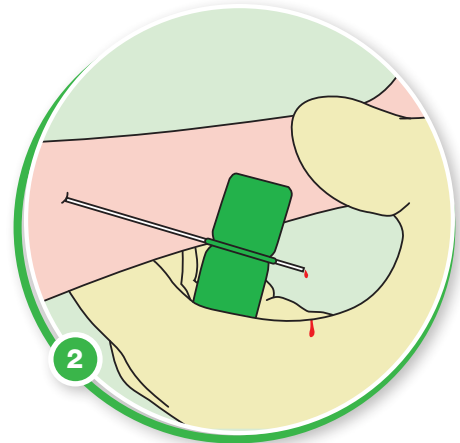
1. Place child in comfortable and convenient position. Prepare insertion site. Drape as required.
2. Perform venepuncture using 19G needle provided.
3. Using fine non-toothed forceps, introduce catheter through needle (Note graduations I 5cm, II 10cm, III 15cm, IIII 20cm).



4. Apply finger pressure on catheter beyond needle tip and carefully remove needle from vessel.
5. Keeping catheter straight, carefully remove needle from catheter.
6. Insert proximal end of catheter into compression hub until black marker is fully out of sight. Whilst maintaining catheter in this position, tighten compression hub.  
**Do not separate compression hub.**

**Please note:** Black marking ring must be within hub and out of view. Catheter is secured by tightening compression hub.

**Warnings:** Avoid the use of alcohol or acetone to clean the catheter as this may result in catheter damage and premature removal. Avoid the use of small syringes less than 10ml for bolus injections as they generate high pressures which may result in catheter damage.



# 22G Leaderflex

Arterial and venous applications

**NEWBORN**  
**> 1kg**

**CHILD**  
**> 1yr**

The Leaderflex range of 22G Seldinger catheters are for use in a variety of venous and arterial applications. Leaderflex is manufactured from polyurethane, which offers excellent insertion and indwell characteristics. Safety features include: a slide clamp for safe line changes; a clear integral extension to reduce phlebitis; and reinforcement of the catheter/wing junction to help minimise the risk of

catheter kinking. Line management is also enhanced by moving hub manipulation away from the insertion site, and reducing the risk of mechanical phlebitis, which can result in premature catheter failure.

## Features and Benefits

### Polyurethane catheter

remains firm during insertion but softens at body temperature, minimising vessel trauma and enhancing stay time.

### X-ray opaque

for accurate tip location without additional contrast medium.

### One-piece catheter construction

simplifies insertion.

### 4, 6 and 8cm lengths

to suit all sizes of patients.

### Integral extension with wing

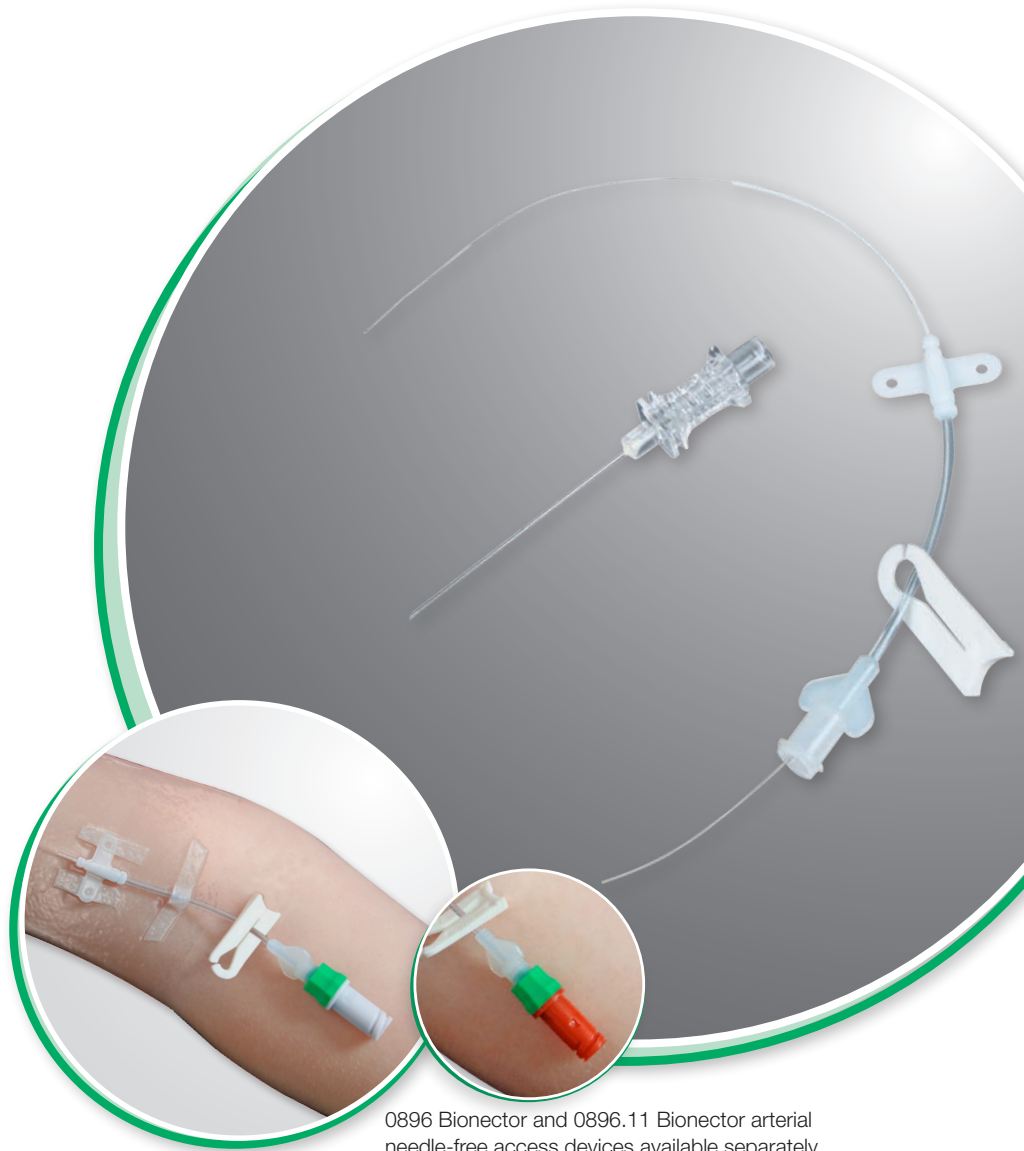
permits secure catheter fixation, reducing the risk of mechanical phlebitis.

### Slide clamp

for line management and safety.

### Flexible guidewire with soft tip

to reduce vessel trauma and aid successful line placement



0896 Bionector and 0896.11 Bionector arterial needle-free access devices available separately

## Kit Contents

- 1 x Catheter
- 1 x Needle
- 1 x Guidewire
- 1 x Outer wrap

## Ordering Information

Product Codes		Description	Size (G)	Length (cm)	Flow Rate (ml/min)*	ID-OD (mm)	Guidewire Length (mm)	Extension Length (mm)	Unit of Sale
Vygon	NPC								
1212.04	FSQ326	Polyurethane catheter with integral extension	22	4	13	0.5 - 0.7	240	45	20
1212.06	FSQ327	Polyurethane catheter with integral extension	22	6	12	0.5 - 0.7	240	45	20
1212.08	FSQ328	Polyurethane catheter with integral extension	22	8	10	0.5 - 0.7	260	45	20

\*Tested to ISO 10555

## Insertion Technique



### The Idea

*"I had the polyethylene catheter, the needle and the guidewire, and suddenly in a split second, there came an attack of common sense. The sequence in which these three items ought to be used suddenly became obvious."*

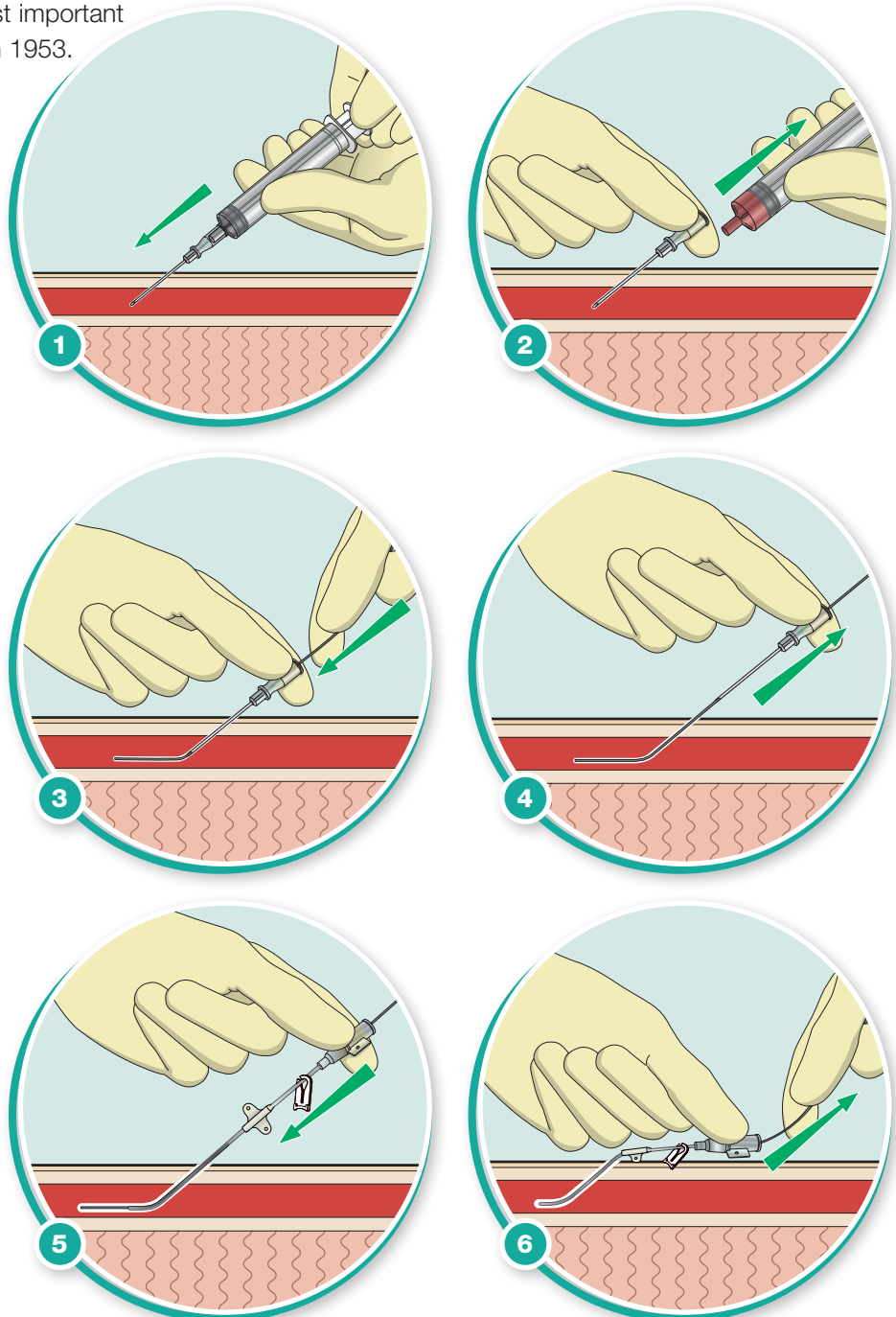
Sven-Ivar Seldinger was born in Mora, Sweden in 1921. After studying medicine at the Karolinska Institute in Stockholm he began his diagnostic radiology training at the Karolinska Sjukhuset in 1950.

Many sensed the great potential of angiography and although methods for introducing a catheter into an artery or vein were available, they were traumatic and involved considerable blood loss. This was the problem that Dr Seldinger set out to solve. He submitted his initial and most important paper on percutaneous catheterisation in 1953.

Dr Seldinger's medical milestone seems simple now. A needle is introduced, a guidewire is passed into the needle lumen and the needle is removed. The catheter is then fed over the wire, the wire is then removed.

The Seldinger technique was, because of its simplicity, adopted worldwide and since its conception has served millions, permitting safe, simple catheterisation of virtually every important vessel in the body.

Vygon is proud to produce Leaderflex, a refined product utilising the Seldinger technique and today's technologies. A fitting tribute to Dr Seldinger.



### The Technique

1. Vessel puncture is performed.
2. Effective venepuncture is confirmed by free aspiration of blood.
3. The syringe is removed and the guidewire, soft tip first, is introduced through the needle.
4. The needle is then removed.
5. The flexible catheter is passed forward over the guidewire.
6. The guidewire is removed.

**Warnings:** Avoid the use of alcohol or acetone to clean the catheter as this may result in catheter damage and premature removal. Avoid the use of small syringes less than 10ml for bolus injections as they generate high pressures which may result in catheter damage.

# 20G Nutriline

Peripherally inserted catheter with peelable cannula

CHILD  
> 1yr

Designed for children and young adults, Nutriline's one piece catheter construction provides clinicians with a high degree of safety. The peelable cannula enables the catheter to be safely advanced through plastic. Additional security is provided by a small primary wing to help minimise the risk of catheter movement and kinking.

As with our other polyurethane catheters Nutriline utilises thin-wall technology to enable optimum flow rates to be achieved without compromising the safety of the catheter.

## Features and Benefits

### Polyurethane catheter

remains firm during insertion but softens at body temperature, minimising vessel trauma and enhancing stay time.

### X-ray opaque

for accurate tip location without additional contrast medium.

### Catheter graduations every cm

aid accurate placement of catheter.

### One-piece construction

simplifies insertion.

### Integral extension with wing

permits secure catheter fixation, reducing the risk of mechanical phlebitis.

### Slide clamp

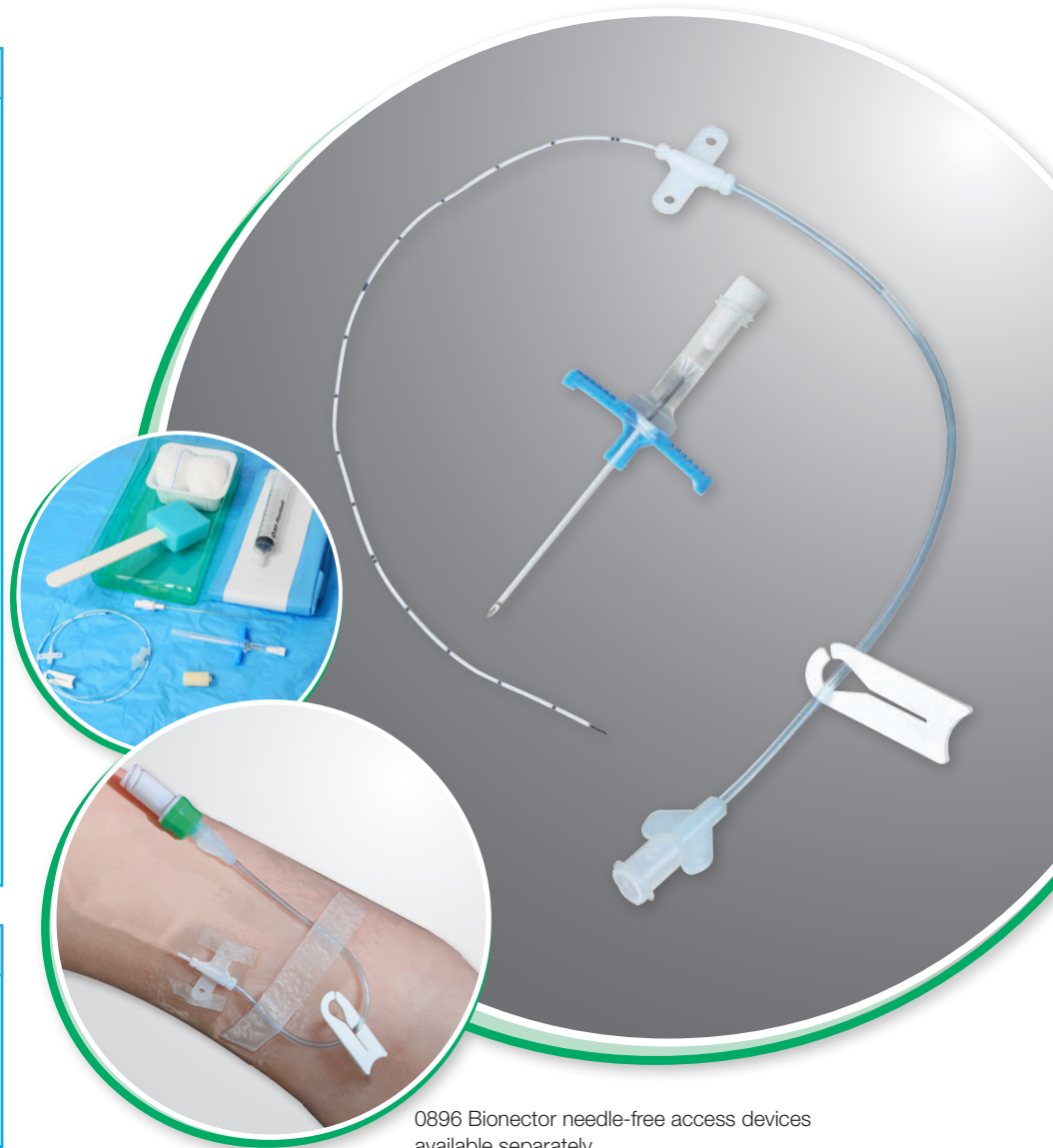
for line management and safety.

### Peelable cannula

unique split cannula, provides the additional safety and security of advancing the catheter through plastic.

## Kit Contents

2 x Ball swabs	1 x Filter straw 5µm
1 x Gallipot	1 x Sterile field/outer wrap
1 x Sponge stick	
1 x Peelable cannula	1 x Fenestrated drape
1 x Injection membrane	
1 x 10ml syringe	



0896 Bionector needle-free access devices available separately

## Ordering Information

Product Codes		Description	Size (G)	Length (cm)	Priming Volume (ml)	Flow Rate (ml/min)*	ID-OD (mm)	Introducer Size (OD-L-G)	Unit of Sale
Vygon	NPC								
1353.302	FSQ340	X-ray opaque graduated polyurethane catheter	20	30	0.23	35.0	0.55-1.05	1.5-31-17	10
7370.17	FSP243	Spare peelable cannula	17						25

\*Tested at 1 bar/14.5psi

## Insertion Technique

### Preparation for Catheter Insertion

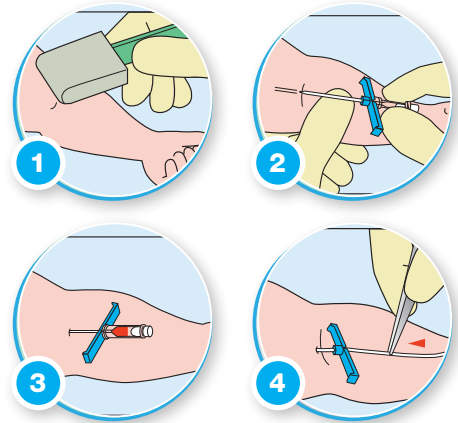
Open using aseptic technique. Add any sterile supplementary equipment needed. Ensure you are using maximum barrier precautions. Put on sterile gloves and prepare tray contents ready for catheter insertion:

1. Draw up saline and heparin flushes using a filter needle or straw to remove particulate material.
2. Flush catheter prior to insertion.

### Nutriline Peelable Cannula Insertion Technique

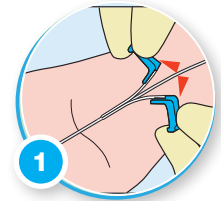
1. Select, prepare, clean (see diagram 1) and drape site of venepuncture. Apply tourniquet.
2. Perform venepuncture with the peelable cannula provided (see diagram 2).
3. Advance cannula until venepuncture is confirmed by free flowing blood into the flashback chamber (see diagram 3). The cannula can be syringe-mounted if preferred.
4. Release tourniquet, advance cannula off the introducer needle and advance gently into vessel. Insert catheter through cannula using non-toothed forceps and short, steady strokes (see diagram 4). **Please note:** To avoid excessive bleeding or possible air aspiration place a gloved finger over the cannula opening following needle withdrawal.

Should catheter advancement become difficult, infuse a little fluid whilst simultaneously advancing the catheter. This has the effect of dilating the vessel distal to the catheter tip.



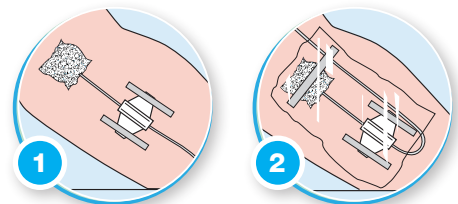
### Nutriline Peelable Cannula Removal

1. Secure the catheter by applying light finger pressure on the catheter beyond the cannula, and slowly withdraw the cannula. Carefully peel the cannula apart whilst maintaining forward pressure on the catheter, taking care not to dislodge the catheter from the vein. Finally advance the catheter to the desired position (see diagram 1).



### Nutriline Catheter Fixation

1. Anchor the catheter using adhesive skin strips. Clean the insertion site with gauze swab. Place small swab over insertion site if necessary (see diagram 1).
2. Loop the extension tube back beside this gauze and apply a transparent dressing (see diagram 2). Light pressure over the insertion site should be maintained for 24 hours. Then change as per hospital protocol.



**Warnings:** Avoid the use of alcohol or acetone to clean the catheter as this may result in catheter damage and premature removal. Avoid the use of small syringes less than 10ml for bolus injections as they generate high pressures which may result in catheter damage.

# Long Line Placement Pack

**NEWBORN**  
< 1kg

**NEWBORN**  
> 1kg

**CHILD**  
> 1yr

Setting the standard, the long line placement pack provides clinicians with equipment to minimise the risk of line sepsis during insertion. The components of the pack have been specifically designed for neonates/paediatrics and selected by those who insert IV lines on a daily basis.

Sepsis has been cited as one of the most common complications for percutaneous long lines.<sup>(2)</sup> Having all of

the required components in one pack makes it easier for clinicians inserting the catheter to use maximum barrier precautions, thereby increasing the likelihood that the highest standard of asepsis is maintained by all clinicians.

33% of long line complications are due to line infection.<sup>(2)</sup>

## Features and Benefits

### Fenestrated transparent drape

provides a maximum barrier to infection whilst allowing you to see and monitor the baby during insertion. Also keeps the baby warm during the line placement and the easy peel allows for easy removal.

### Choice of neonatal forceps

straight and curved non-toothed forceps to aid the insertion of your long line.

### Neonatal tourniquet

purpose-designed tourniquet to minimise damage to delicate skin.

### Reduced set-up time

all your items available in one pack.

## Kit Contents

1 x Opaque tray	1 x Outer wrap
1 x Prep forceps, blue	75 x 90cm
1 x Pack of Steri-Strips™	1 x Fenestrated
2 x Tape measures	transparent drape
2 x Tegaderm™ dressings	with easy peel
4 x 4cm	50 x 50cm
1 x Luer-slip syringe	1 x Pair of neonatal
10ml	scissors 9cm
1 x Neonatal tourniquet	1 x Iris forceps straight,
4 x Ball swabs	non-toothed 10cm
2 x Drape 45 x 75cm	1 x Iris forceps curved,
2 x Gallipot 60ml	non-toothed 10cm
2 x Hand towels	5 x Swabs 7.5 x 7.5cm,
	8ply, white



Fenestrated transparent drape with easy peel

## Ordering Information

Product Codes		Product Description	Unit of Sale
Vygon	NPC		
80.199.519	FSU369	Long line placement pack	25



Reference  
2.

Dr A. Soe and R. Buckle. Specialist Clinical Audit Programme for London, Kent, Surrey and Sussex. March 2004.

Umbilical placement pack overleaf

# Umbilical Placement Pack

**NEWBORN**  
 < 1kg

**NEWBORN**  
 > 1kg

The umbilical placement pack provides clinicians with high quality equipment to minimise the risk of line sepsis and provides convenience during insertion. The components of the pack have been specifically designed for neonates and selected by those who insert umbilical lines on a daily basis.

Sepsis has been cited as one of the most frequent complications for umbilical catheters.<sup>(3)</sup> Having all of the required components in one pack makes it easier for clinicians inserting the catheter to use maximum barrier precautions, thereby increasing the likelihood that the highest standard of asepsis is maintained by all clinicians.



## Features and Benefits

### Fenestrated transparent drape

provides a maximum barrier to infection whilst allowing you to see and monitor the baby during insertion. Also keeps the baby warm during the line placement and the easy peel allows for easy removal.

### Choice of neonatal forceps

straight and curved non-toothed forceps to aid the insertion of your long line.

### Reduced set-up time

all your items available in one pack.

## Kit Contents

1 x Opaque tray	1 x Umbilical cotton
1 x Outer wrap 75 x 90cm	1 x Tape measure
1 x Hypodermic needle 18G 1/2"	2 x Mosquito forceps curved 13cm
1 x Hypodermic needle 20G 1/2"	1 x Mosquito forceps straight 13cm
1 x Retractable scalpel N° 11	1 x Iris forceps curved 10.5cm
2 x Drapes 45 x 75cm	1 x Iris forceps curved 10cm
1 x Fenestrated drape with easy peel 50 x 50cm	1 x Iris forceps straight 10cm
2 x Hand towels	1 x Iris forceps straight with teeth 10.5cm
1 x Pair of suture scissors 11cm	1 x Needle holder 14cm
10 x Swabs 10 x 10cm, 4ply	1 x Luer-slip syringe 1ml
6 x Swabs 5 x 5cm, 4ply	2 x Luer-lock syringes 3ml
1 x Red gallipot 60ml	2 x Luer-lock syringes 5ml
1 x Transparent gallipot 60ml	1 x Vessel dilator probe 14cm
1 x Silk suture with curved cutting needle 3.0	1 x Adhesive fixation strips

## Ordering Information

Product Codes		Product Description	Unit of Sale
Vygon	NPC		
80.199.695	FSU377	Umbilical placement pack	25



Vygon (UK) Ltd, The Pierre Simonet Building, V Park, Gateway North, Latham Road, Swindon SN25 4DL  
 T: 01793 748800 | F: 01793 748899 | W: www.vygon.co.uk | E: vygon@vygon.co.uk

### Reference

3. Dr A. Soe and R. Buckle. Specialist Clinical Audit Programme for London, Kent, Surrey and Sussex. March 2004.



As part of our ongoing commitment to education and training we can offer you the following:



## Product Specific Workshops

Small IV workshops which are tailor-made to meet individual needs and expectations. They are classroom-based and combine lecture with hands-on training opportunities.



## Hands-on Training Aids

These aids enable clinicians to practice catheter care and maintenance skills and are available for workshops or short-term loan.



## Training DVDs

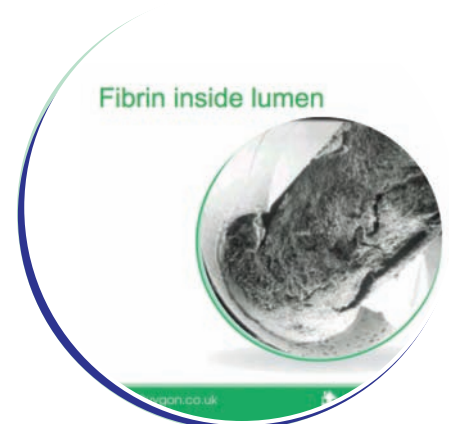
These have been made by clinicians for clinicians and have been designed to guide the new user through the essential elements of insertion, care and maintenance of our products.



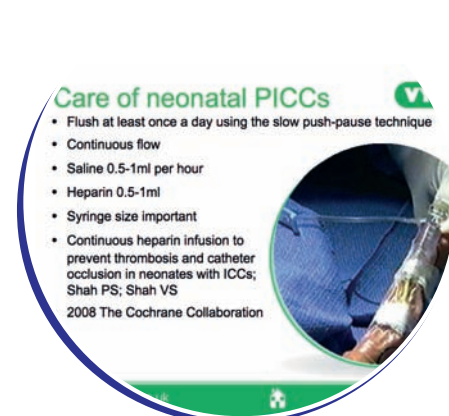
## Neonatal PowerPoint Presentation

Chapters in this presentation include:

- Why use long lines?
- Complications.
- Insertion and removal techniques.



For further information on any of the above please contact us on **01793 748800** or email us at [vygon@vygon.co.uk](mailto:vygon@vygon.co.uk)



# Summary and Measures to Prevent, Detect and Treat Complications of Central Lines for Neonates

**NEWBORN**  
**< 1kg**

**NEWBORN**  
**> 1kg**

Potential Problems	Possible Causes	Practice Recommendations
Difficulty in successfully flushing catheter	<ul style="list-style-type: none"> <li>Clamped or kinked line.</li> </ul>	<ul style="list-style-type: none"> <li>Secure and tape the line carefully after the insertion.</li> <li>Check integrity of catheter prior to use.</li> </ul>
	<ul style="list-style-type: none"> <li>Occluded line.</li> </ul>	<ul style="list-style-type: none"> <li>Identify incompatible solutions or blood clot.</li> <li>Clear clotted or sluggish lines in accordance with hospital policy for catheter maintenance.</li> </ul>
Catheter damage	<ul style="list-style-type: none"> <li>Flushing with a small syringe against resistance.</li> </ul>	<ul style="list-style-type: none"> <li>Use 10ml syringes only in order to avoid excessive pressure. However use the volume of flush in accordance with hospital policy.</li> </ul>
	<ul style="list-style-type: none"> <li>Heat from storage causing degradation of catheter material.</li> </ul>	<ul style="list-style-type: none"> <li>Store in accordance with manufacturer's recommendations.</li> </ul>
	<ul style="list-style-type: none"> <li>Accidental damage e.g. stretching or during taping.</li> </ul>	<ul style="list-style-type: none"> <li>Handle catheter carefully when fixing or taping.</li> </ul>
Sepsis	<ul style="list-style-type: none"> <li>Insertion site infection.</li> <li>Line sepsis.</li> </ul>	<ul style="list-style-type: none"> <li>Use a strict aseptic technique during placement.</li> <li>If dressing changes are needed use a strict aseptic technique.</li> <li>Limit access to line.</li> </ul>
	<ul style="list-style-type: none"> <li>Poor site care.</li> </ul>	<ul style="list-style-type: none"> <li>Observe the catheter insertion site for signs of inflammation, phlebitis, erythema, induration.</li> <li>Treat in accordance with hospital policy.</li> </ul>
Malposition pericardial tamponade	<ul style="list-style-type: none"> <li>The catheter may migrate either inwardly or outwards.</li> </ul>	<ul style="list-style-type: none"> <li>Confirmation of correct tip positioning into superior vena cava, (upper portion of the distal third) or inferior vena cava prior to use.</li> <li>An X-ray or ultrasound may be used in accordance with hospital policy, to diagnose the problem before treatment.</li> <li>Treat in accordance with hospital policy.</li> </ul>
Extravasation	<ul style="list-style-type: none"> <li>Catheter tip is not in central position after placement.</li> </ul>	<ul style="list-style-type: none"> <li>Extravasation treatment in accordance with local guideline.</li> </ul>
	<ul style="list-style-type: none"> <li>Damaged catheter.</li> <li>Thrombosis blocking flow and adding pressure at the terminal tip.</li> <li>Phlebitis with swelling, creating added pressure.</li> </ul>	<ul style="list-style-type: none"> <li>Remove the line or treat in accordance with hospital policy.</li> </ul>
Difficulty in removing catheter	<ul style="list-style-type: none"> <li>Venospasm.</li> </ul>	<ul style="list-style-type: none"> <li>Remove slowly and do not apply pressure to the vein wall.</li> <li>The use of a warm compress may help.</li> </ul>

# Custom Placement Packs for Neonatal and Paediatric Care

**NEWBORN**  
< 1kg

**NEWBORN**  
> 1kg

**CHILD**  
> 1yr

## Neonatal and Paediatric Catheters

Qty

ECC catheter (silicone)	code: 2184.015	150mm	24G	
ECC catheter (silicone)	code: 2184.00	300mm	24G	
ECC catheter (silicone)	code: 2184.005	500mm	24G	
Premicath catheter (PUR)	code: 1261.21	200mm	28G	
Premicath catheter (PUR)	code: 1261.22	200mm	28G	
Premicath catheter (PUR)	code: 1261.208	200mm	28G	
Nutriline catheter (PUR)	code: 1352.152	150mm	24G	
Nutriline catheter (PUR)	code: 1352.302	300mm	24G	
Nutriline catheter (PUR)	code: 1353.302	300mm	20G	
Umbilical catheter (PUR)	code: 1270.02	300mm	2.5Fr	
Umbilical catheter (PUR)	code: 1270.03	400mm	3.5Fr	
Umbilical catheter (PUR)	code: 1270.04	400mm	4.0Fr	
Umbilical catheter (PUR)	code: 1270.05	400mm	5.0Fr	
Umbilical catheter (PUR)	code: 1270.08	400mm	8.0Fr	
Umbilical catheter (PUR)	code: 1272.14	200mm	4.0Fr	
Nutriline catheter (PUR)	code: 1353.302	300mm	20G	
Nutriline Twin-Flo catheter (PUR)	code: 1252.235	300mm	24G	
Leaderflex catheter (PUR)	code: 1212.04	40mm	22G	
Leaderflex catheter (PUR)	code: 1212.06	60mm	22G	
Leaderflex catheter (PUR)	code: 1212.08	80mm	22G	

## Syringes

Qty

Syringe 10ml	Luer-slip: <input type="checkbox"/>	Luer-lock: <input type="checkbox"/>	
Syringe 20ml	Luer-slip: <input type="checkbox"/>	Luer-lock: <input type="checkbox"/>	

## Hypodermic Needles

Qty

Hypodermic needle - 21G x 1½"	Colour: <input type="checkbox"/>	
Hypodermic needle - 25G x 5⁄8"	Colour: <input type="checkbox"/>	
Other hypodermic needles (add size here) .....		

## Swabs

Qty

Swabs - 7.5 x 7.5cm	Colour: <input type="checkbox"/>	Ply: 8 12	
Swabs - 10 x 10cm	Colour: <input type="checkbox"/>	Ply: 8 12	
Swabs ball - large - white - XRO			
Swabs ball - small - white - XRO			
Swabs - 10 x 10cm - 12ply - green - XRO			
Swabs - 10 x 10cm - 4ply - white - non-woven			

## Ancillary Items

Qty

Hand towel - 30 x 40cm			
Gallipot			
Sponge stick 6"			
Mini scalpel N°.11			
Scalpel N°.11			
Scalpel N°.15			
Blue prep forceps (lockable)			
Green prep forceps (Bryant type)			
Bionector (code) .....			
Octopus (code) .....			
Ready-Set filter (code) .....			
Transparent dressing (size) .....			
IV3000 <sup>®</sup> : <input type="checkbox"/>	Tegaderm™ <input type="checkbox"/>	Dermafilm: <input type="checkbox"/>	Other: <input type="checkbox"/>
three-way stopcock			
Suture .....			
Metal suture forceps			
Yellow disposal bag			
Filter straw 4"			
Metal scissors			
Neonatal tourniquet			

Tape measure	
Dilator .....	
Artery Forceps	Curved: <input type="checkbox"/> Straight: <input type="checkbox"/>
Other .....	

## Drapes

Qty

Clear aperture drape - 40 x 40cm	
Other .....	

## Gown

Qty

Examination gown	
------------------	--

## Pack Ref:

I would like to receive a quotation for a pack containing the components indicated based on a volume of ..... packs per annum.

Current Use:
Estimated Price: £

Name:

Designation:

Department:

Hospital:

Address:

Email:

Telephone:  Ext:

Signature:  Date:

Sales Executive:

PACK TO BE LABELLED:

Should our quotation be successful, the first delivery of this pack would be approximately 12 weeks from receipt of your order.

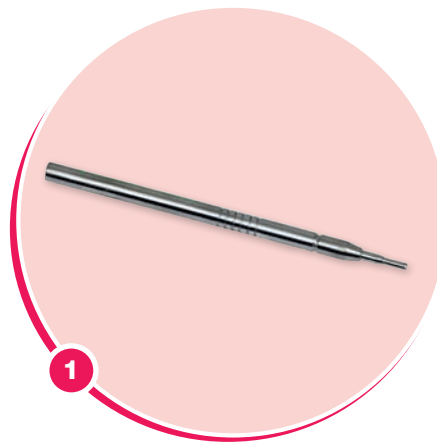
**Please return completed form to:**

Custom Pack Team  
Vygon (UK) Ltd, The Piere Simonet Building, V Park,  
Gateway North, Latham Road, Swindon, Wiltshire, SN25 4DL.

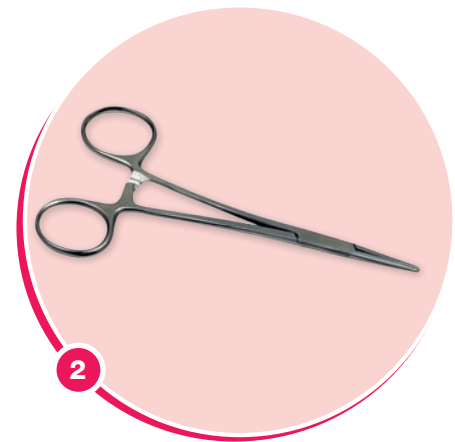
If you have any queries please contact the Custom Pack Team.  
Tel: 01793 748800  
Email: [custompacks@vygon.co.uk](mailto:custompacks@vygon.co.uk)

## A selection of components available:

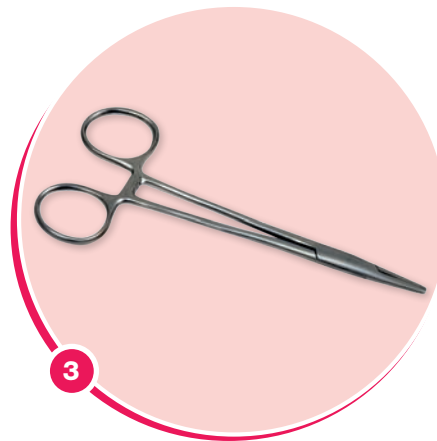
1. Dilator



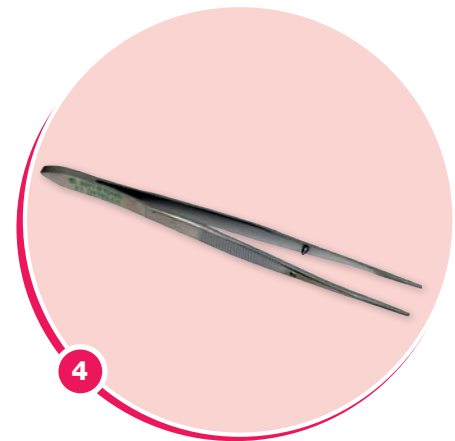
2. Artery Forceps



3. Suture Forceps



4. Iris Forceps



5. Peelable Drape



6. Latex-free Tourniquet

