



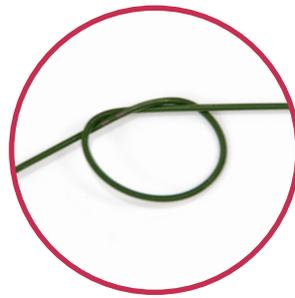
VASCULAR ACCESS  
Adult Central Venous Catheters



multicath UP range  
The Ultimate Protection



Value Life



### Time / cost saving

- Nitinol & Teflon coated J guidewire to avoid kinking



### Infusion line management

- 2 to 7 lumen catheter to optimise your infusion process
- High flow UP for rapid, safe volume replacement therapy
- High pressure to enable a flow rate of 5ml/s at a viscosity of 11.8mPas under 150psi/10bar



### Thrombosis & arrhythmia limitation

- comb**card** for precise tip placement
- 4 catheter lengths adapted to your patient and the chosen puncture site: 12.5cm, 16cm, 20cm, and 30cm

### Infection risk management

- multicath UP with polyurethane for low risk patient
- multicath expert UP technology for middle risk patient
- multistar UP technology for high risk patient



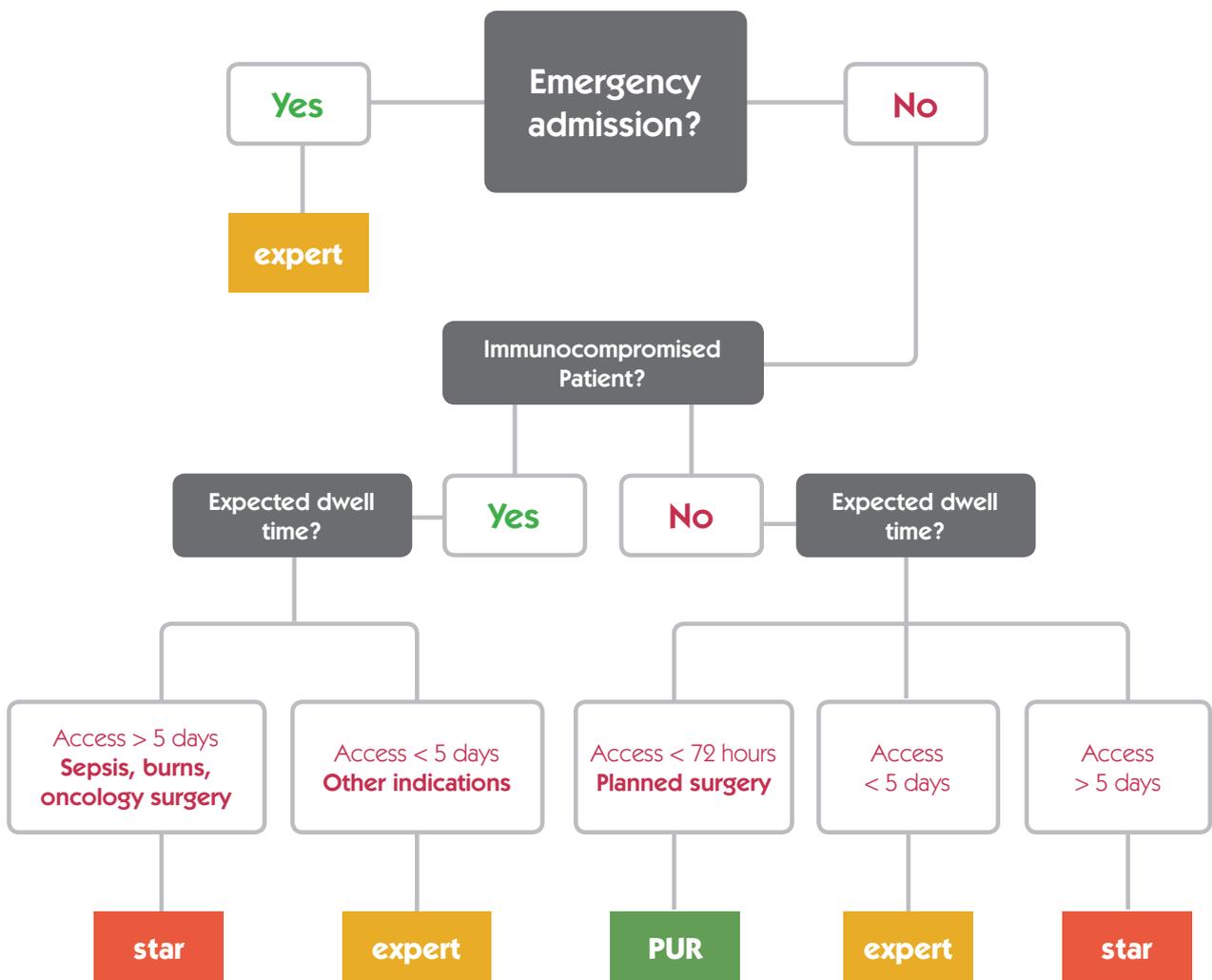
### User safety

- seldisafe to prevent needlestick injuries
- Blood Less System (BLS) to limit blood exposure
- Safety Scalpel to avoid sharp injuries

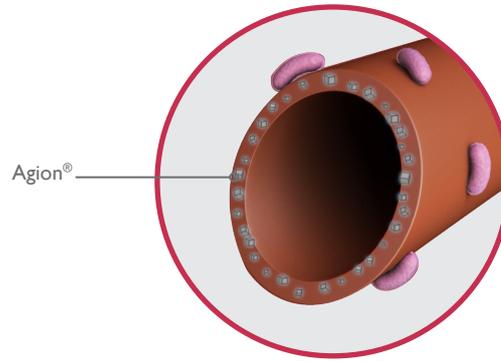
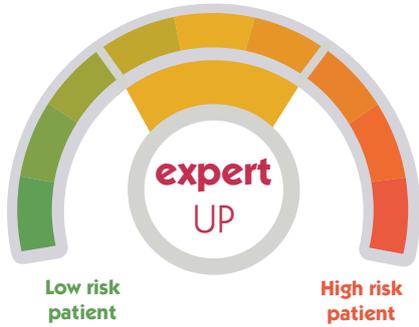


# “Choose the right catheter that your patient needs”

3 different material proposals to manage risk patient from low to high.



# multicath expert UP technology for middle risk patient



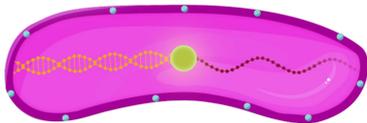
The main component of the **expert UP** technology is the **patented silver compound Agion®** incorporated into the catheter material.

Silver ions are continuously released out of the catheter when it comes into contact with blood, body fluids or infusion solutions.

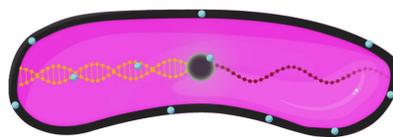
The Agion® has a bacteriostatic activity. It is able to inhibit the growth or reproduction of gram+ and gram- bacteria, and fungi thanks to silver ions.

Microbial growth on the inner and outer surface of the catheter is suppressed, minimising the onset of catheter related sepsis. Due to the vast active substance content of silver ions, the antimicrobial effect unfolds over the entire life of the catheter.

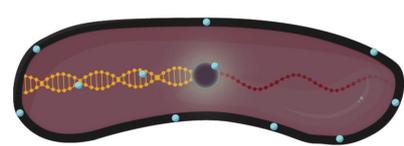
## Bacteriostatic activity



Cell wall damage and loss of function



Inhibition of the reproductive process



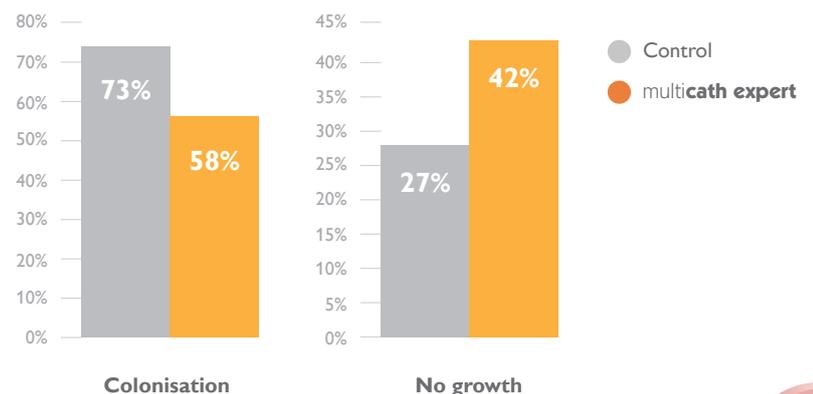
Interruption of cell metabolism

## Clinical studies

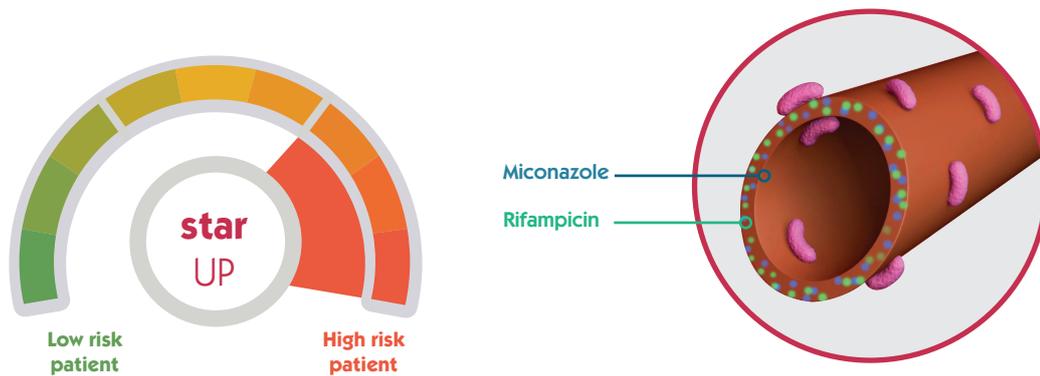
“This study indicates that the silver zeolite-impregnated catheter is superior to non-impregnated catheter in reducing the rate of CVC colonisation.” (1)

The study involved 246 CVC insertions of which 122 were “multicath expert CVC” and 124 were “control CVC”.

Overall incidence of catheter tip colonisation:



# multi<sup>star</sup> UP technology for high risk patient



The **star** UP technology is the innovative combination of two active substances, Rifampicin and Miconazole, chosen for their synergic properties:

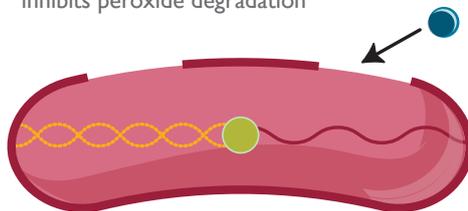
- Overlapping spectrum of efficacy on gram+ and gram- bacteria and fungi; (2,3)
- Multiple level of action on the bacteria;
- Low risk of bacterial resistance development. (3)

Thanks to the very high concentration in small quantities of the two active substances, the **star** UP technology ensures a strong local action at the inner and outer surfaces of the catheter. The induction of resistant micro-organisms is therefore improbable. (3)

## Combined antimicrobial effect

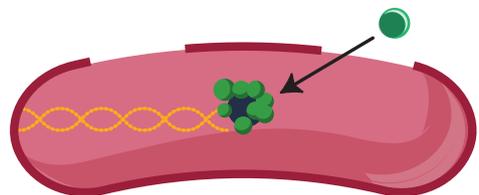
### Miconazole

- Synthetic antifungal with low toxicity
- Mechanical action: damages cell wall and inhibits peroxide degradation



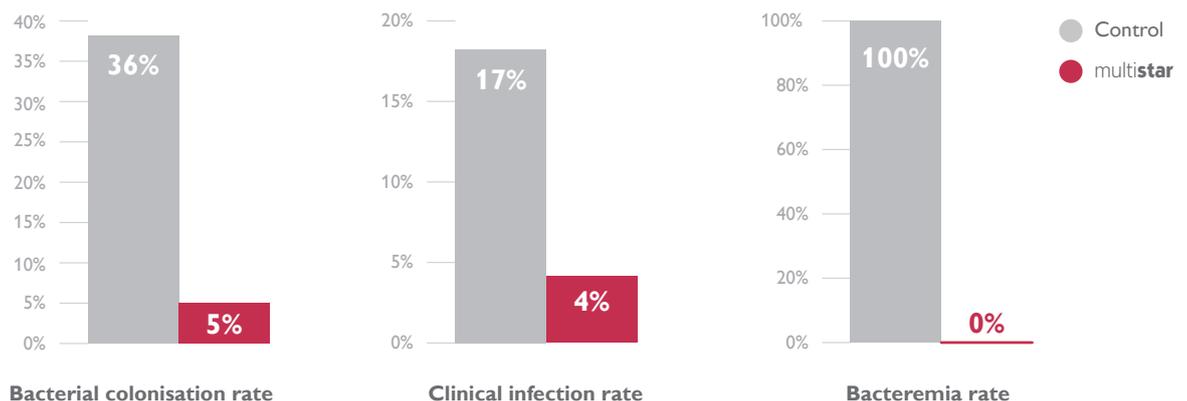
### Rifampicin

- High efficacy against fast growing and resting bacteria in biofilm
- Mechanical action: inhibits RNA synthesis



## Clinical studies

The clinical efficacy of the star UP technology has been demonstrated in two controlled clinical trials involving a total of 648 individuals and a retrospective cohort study. (4,5,6)



## User safety

Every year, many needlestick injuries (including sharp injuries) occur all over the world...

### Estimated Occurrence of total and Injection/IV-related NSI (7) in 6 different countries:

Country	Total annual number of NSI	Annual number of infection/IV-related NSI
United States	384,000	123,000
UK	100,00	38,000
Germany	700,000	168,000
France	18,720a	6,552a
Italy	28,200	18,900
Spain	21,815	14,388

*IV: Intravenous / NSI: Needlestick Injuries / a: Nurses only*

...leading for an important part to infections from three major viruses:

- Hepatitis B virus - 6 to 30 % of the needlestick injuries; (8)
- Hepatitis C virus - 1.8 %; (8)
- Human Immunodeficiency Virus "HIV" – 0.3 %.(8)

Therefore the UP range integrates three exclusive safety components for user Ultimate Protection:

**seldisafe:** Safety needle for Seldinger technique

- Prevention of needlestick injuries and blood exposure;
- Intuitive passive system with safe mode clearly apparent;



**Safety Scalpel**

- Sharp injuries avoidance;
- Active safety system.

**BLS:** Innovative system on seldisafe

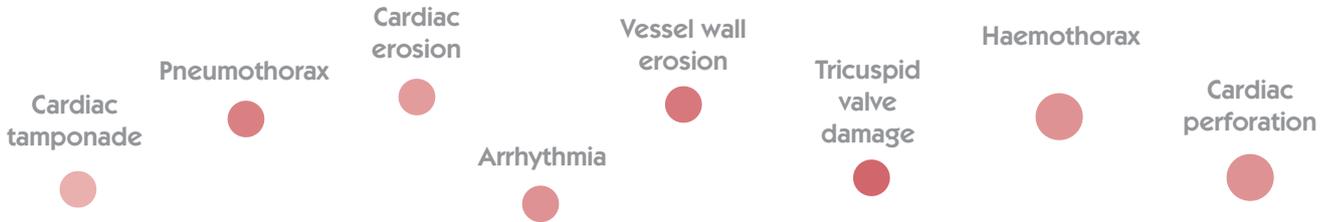
- Blood spillage and exposure reduction;
- Guidewire insertion optimisation.



# Thrombosis & arrhythmia limitation

The misplacement of central venous catheter induces several mechanical complications. They occur with an incidence from 6.2% to 11.8% in internal jugular and subclavian vein accesses. (9)

(9,10,11,12,13)



These complications result from erosion through vessels, atrial or ventricular chambers by the tip of the catheter. (11,14,15)

To protect your patient from complications and raise up the multicath UP placement to the state of the art, the new UP range offers:

- 4 different lengths: **12.5cm**, **16cm**, **20cm**, and **30cm**;
- **combcath**: ECG cable integrated with the 16cm, 20cm, and 30cm catheters to reach the Ultimate Placement.

## “HOW DOES IT WORK?”

Connect the combcath on the guidewire and to the ECG and simply observe the P wave form during the placement of the catheter tip.



*“The closer to the right atrium the catheter tip is, the higher the P wave form is.”*



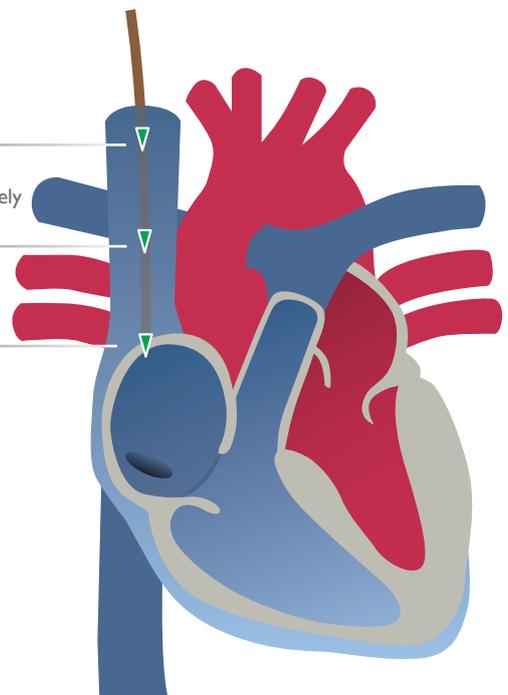
**Upper segment of the Superior Vena Cava (SVC):** The P wave has similar dimensions to normal. (16)



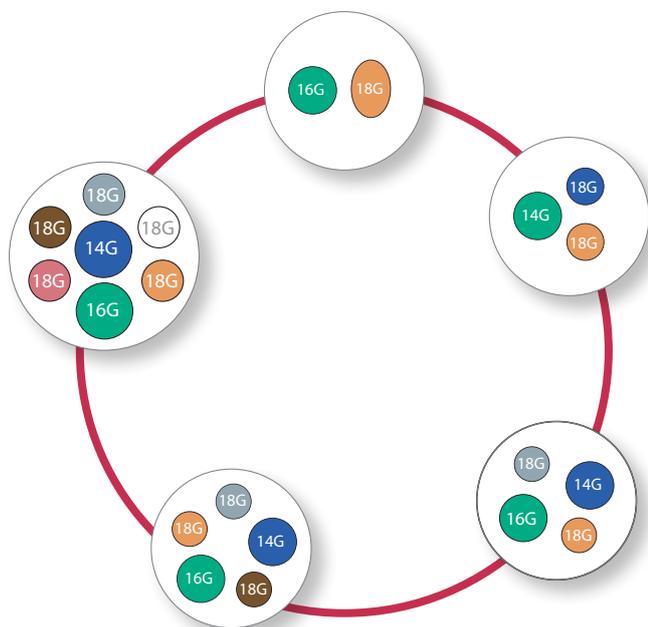
**Lower segment of the SVC:** The height of the P wave is approximately half of the peak that it will reach at the cavo-atrial junction. (16)



**Cavo-atrial junction:** The P wave is at its peak amplitude and no negative segments are seen in the standard P wave. (16)



## Infusion line management



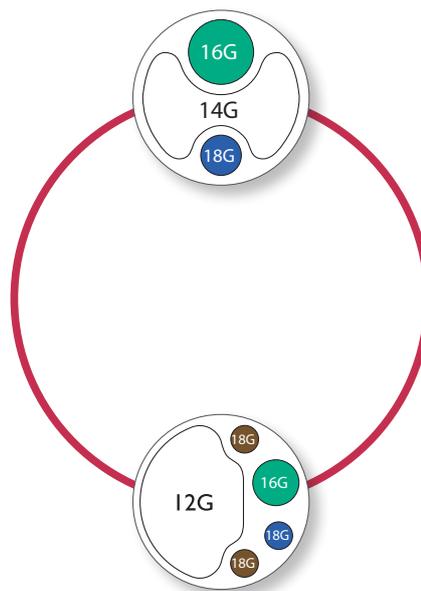
### 2 to 7 lumen

The management of the infusion line is a real challenge in the Intensive Care Units.

To optimise your infusion processes, the multi**cath** UP range presents a large choice from 2 to 7 lumen catheters, for simultaneous infusion of incompatible solutions.

### High flow UP

High flow UP have been designed to achieve rapid, safe volume replacement and allow intravenous therapy, infusion and blood sampling. The multi**cath** HF UP and multi**cath expert** HF UP exist in 3 and 5 lumen with a flow rate up to 400ml/min.

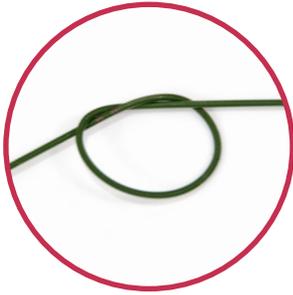


### High pressure

The HF UP catheters present a high pressure distal line (marked «HP») to enable a flowrate of 5ml/s at a viscosity of 11.8mPas under 150psi/10bar.

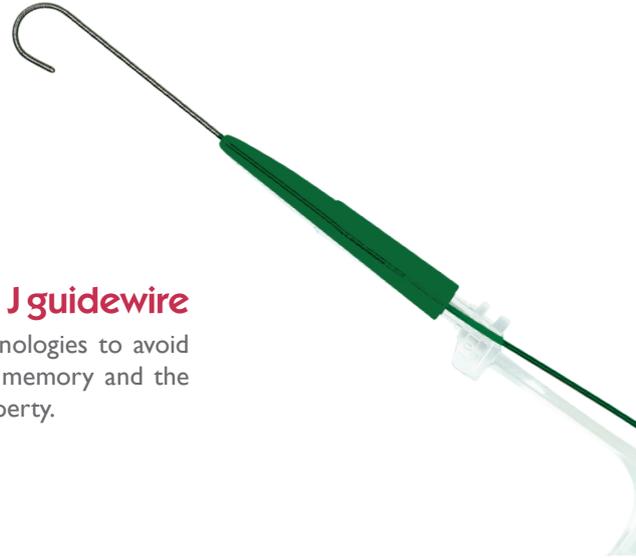
## Time / cost saving

*“Prevent guidewire kinking for a Unique Puncture.”*



### Nitinol and Teflon coated J guidewire

The J guidewire combines two technologies to avoid kinking. The Nitinol core has shape memory and the Teflon coating has a great sliding property.



### VYSET

Customization with VYSET® enables you to create a pack specific to your requirements and standardizing insertion procedures and ensuring maximum barrier precautions, therefore reducing the associated risk of infection.



13.

	multicath UP	multicath expert UP	multistar UP	Catheter information									Guidewire		Unit of sales
				Length cm	Size Fr (Ø mm)	Priming volume ml (Flow rate ml/min)							Length cm	Ø mm	
						D.	M. 1	M. 2	M. 3	M. 4	M. 5	P.			
2 Lumen	157.072	8157.072	6157.072	12.5	7.5 (2.5)		-	-	-	-	-	-	60	0.88	5/box*
	157.172	8157.172	6157.172	16	7.5 (2.5)	0.56 (50)	-	-	-	-	-	0.56 (52)	60	0.88	5/box*
	157.272	8157.272	6157.272	20	7.5 (2.5)	0.60 (43)	-	-	-	-	-	0.60 (45)	60	0.88	5/box*
	157.372	8157.372	6157.372	30	7.5 (2.5)	0.65 (35)	-	-	-	-	-	0.65 (37)	70	0.88	5/box*
3 Lumen	155.072	8155.072	6155.072	12.5	7.5 (2.7)			-	-	-	-		60	0.88	5/box*
	155.172	8155.172	6155.172	16	7.5 (2.7)	0.30 (63)	0.33 (34)	-	-	-	-	0.36 (38)	60	0.88	5/box*
	155.272	8155.272	6155.272	20	7.5 (2.7)	0.45 (60)	0.34 (30)	-	-	-	-	0.36 (30)	60	0.88	5/box*
	155.372	8155.372	6155.372	30	7.5 (2.7)	0.49 (50)	0.4 (18)	-	-	-	-	0.50 (20)	70	0.88	5/box*
4 Lumen	158.072	8158.072	6158.072	12.5	8.5 (2.8)	0.51 (60)	0.65 (107)	0.44 (18)	-	-	-	0.44 (19)	60	0.88	5/box*
	158.172	8158.172	6158.172	16	8.5 (2.8)	0.61 (49)	0.74 (93)	0.56 (13)	-	-	-	0.52 (18)	60	0.88	5/box*
	158.272	8158.272	6158.272	20	8.5 (2.8)	0.66 (47)	0.82 (69)	0.6 (11)	-	-	-	0.58 (14)	60	0.88	5/box*
	158.372	8158.372	6158.372	30	8.5 (2.8)	0.71 (34)	1 (64)	0.68 (9)	-	-	-	0.63 (8)	70	0.88	5/box*
5 Lumen	159.072	8159.072	6159.072	12.5	9.5 (3.15)	0.43 (65)	0.55 (110)	0.36 (18)	0.36 (19)	-	-	0.42 (20)	60	0.88	5/box*
	159.172	8159.172	6159.172	16	9.5 (3.15)	0.43 (57)	0.57 (84)	0.36 (15)	0.36 (16)	-	-	0.42 (18)	60	0.88	5/box*
	159.272	8159.272	6159.272	20	9.5 (3.15)	0.47 (55)	0.60 (80)	0.39 (15)	0.38 (12)	-	-	0.43 (17)	60	0.88	5/box*
	159.372	8159.372	6159.372	30	9.5 (3.15)	0.51 (38)	0.65 (68)	0.40 (7.8)	0.42 (8.4)	-	-	0.45 (9.4)	70	0.88	5/box*
7 Lumen	170.072	8170.072	6170.072	12.5	11.5 (3.9)	0.49 (60)	0.58 (110)	0.50 (18)	0.50 (18)	0.50 (18)	0.50 (21)	0.50 (21)	60	0.88	5/box*
	170.172	8170.172	6170.172	16	11.5 (3.9)	0.61 (60)	0.62 (110)	0.43 (15)	0.50 (18)	0.50 (18)	0.50 (18)	0.52 (18)	60	0.88	5/box*
	170.272	8170.272	6170.272	20	11.5 (3.9)	0.61 (50)	0.62 (94)	0.49 (12)	0.50 (12)	0.50 (14)	0.50 (14)	0.56 (14)	60	0.88	5/box*
	170.372	8170.372	6170.372	30	11.5 (3.9)	0.64 (38)	0.80 (77)	0.52 (8)	0.6 (8)	0.61 (10)	0.61 (10)	0.61 (10)	70	0.88	5/box*

\*multicath UP are supplied in boxes of 10 units.

	multicath HF UP	multicath expert HF UP	Catheter information							Guidewire		Unit of sales
			Length cm	Size Fr (Ø mm)	Priming volume ml (Flow rate ml/min)					Length cm	Ø mm	
					D.	M. 1	M. 2	M. 3	p.			
3 Lumen	155.912	8155.912	12.5	9 (3)	0.50 (55)	0.50 (16)	-	-	1.50 (200)	60	0.88	10/box
	155.916	8155.916	16	9 (3)	0.55 (50)	0.55 (14)	-	-	1.60 (180)	60	0.88	10/box
	155.920	8155.920	20	9 (3)	0.65 (45)	0.65 (12)	-	-	1.8 (160)	60	0.88	10/box
	155.930	8155.930	30	9 (3)			-	-		70	0.88	10/box
5 Lumen	159.912	8159.912	12.5	12 (4)	0.60 (50)	0.50 (16)	0.50 (16.5)	0.55 (17)	1.60 (400)	60	0.88	10/box
	159.916	8159.916	16	12 (4)	0.65 (45)	0.55 (14)	0.55 (14.5)	0.60 (15)	1.80 (350)	60	0.88	10/box
	159.920	8159.920	20	12 (4)	0.70 (40)	0.60 (12)	0.60 (12.5)	0.65 (13)	2.0 (300)	60	0.88	10/box
	159.930	8159.930	30	12 (4)						70	0.88	10/box

Product designation	Ø (G)	Length (mm)	Article code	Unit of sales
seldisafe	18	70	219.131	20/box

Product designation	Article code	Unit of sales
combcard	9168.202	10/box



# Literature

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## CRITICAL CARE

**For further information, please contact: [questions@vygon.com](mailto:questions@vygon.com)**

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