

Haemodialysis

# Fistula Needles

Product Range



Fresenius Medical Care

# Fistula Needles from Fresenius Medical Care

## The importance of vascular access

During haemodialysis, optimal solute clearance depends, among other factors, upon the effective blood flow rate passing through the dialyser. Considerations of both the fistula condition and the selection of the needle dimension influence the effective blood flow to be achieved.

As the fistula needles (or catheters) used are normally the limiting factors for the extracorporeal flow rate, their dimensions are key to the diffusive and convective solute clearance that can be achieved during the dialysis treatment.

From the technical point of view, the blood flow rate through a fistula needle primarily depends on two parameters:

- Inner diameter
- Length

The larger the inner diameter and the shorter the length, the higher the blood flow rates that can be attained under appropriate pressure conditions. Too small inner diameters with inappropriate blood flow rates could lead to increased shear forces, leading to haemolysis (see EBPB III.5; NDT 2002; 17: 38-44).

In routine dialysis practice, it is important to choose the appropriate needle according to the desired extracorporeal blood flow rate ( $Q_B$ ; see figure 1) and the available access flow rate in the fistula in order to achieve the optimum balance between patient comfort and dialysis efficiency.

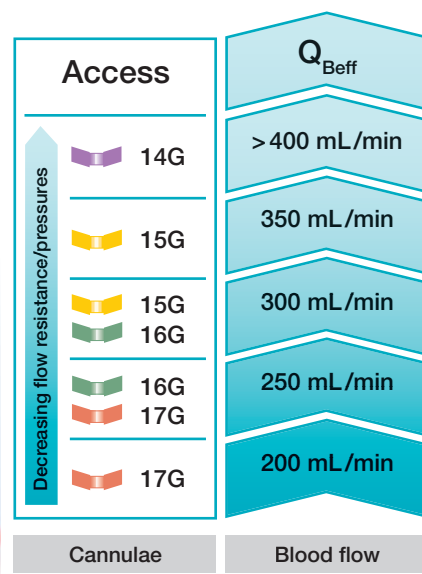
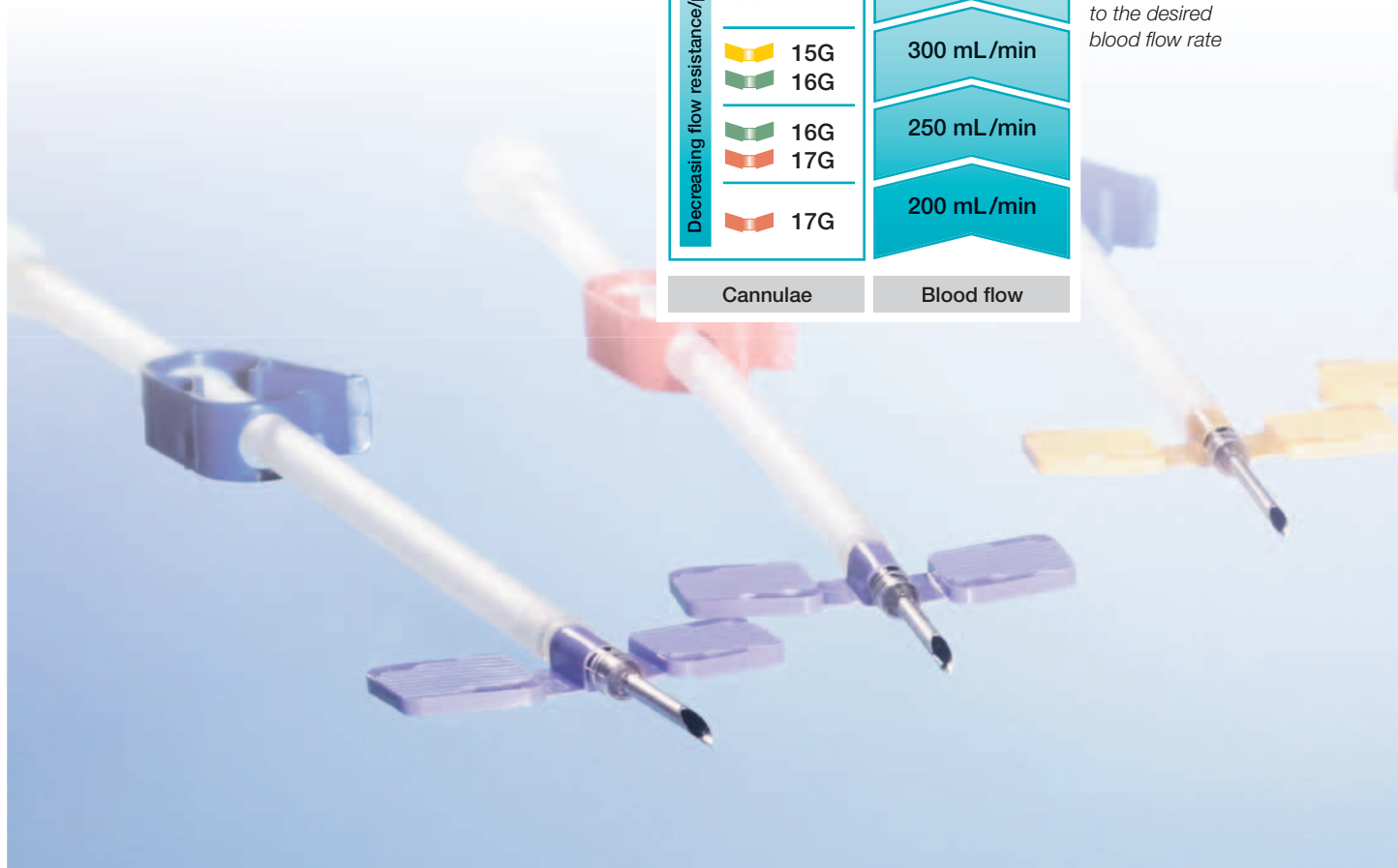


Figure 1: Recommended size of fistula needle in relation to the desired blood flow rate



## High blood flow rates – high clearances

The amount of solute clearance achieved during dialysis is to a considerable extent determined by the effective blood flow rate.

Increasing the blood flow rate is thus a very effective method of enhancing dialysis efficiency. Figure 2 illustrates that in the blood flow range of 0 – 500 mL/min, the increase in clearance of low molecular weight substances, e.g. urea, is nearly proportional to the increase in blood flow rate.

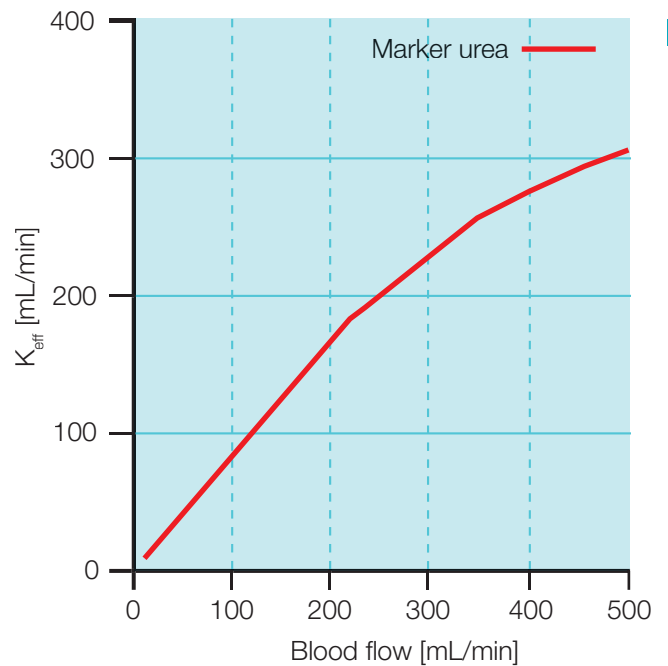
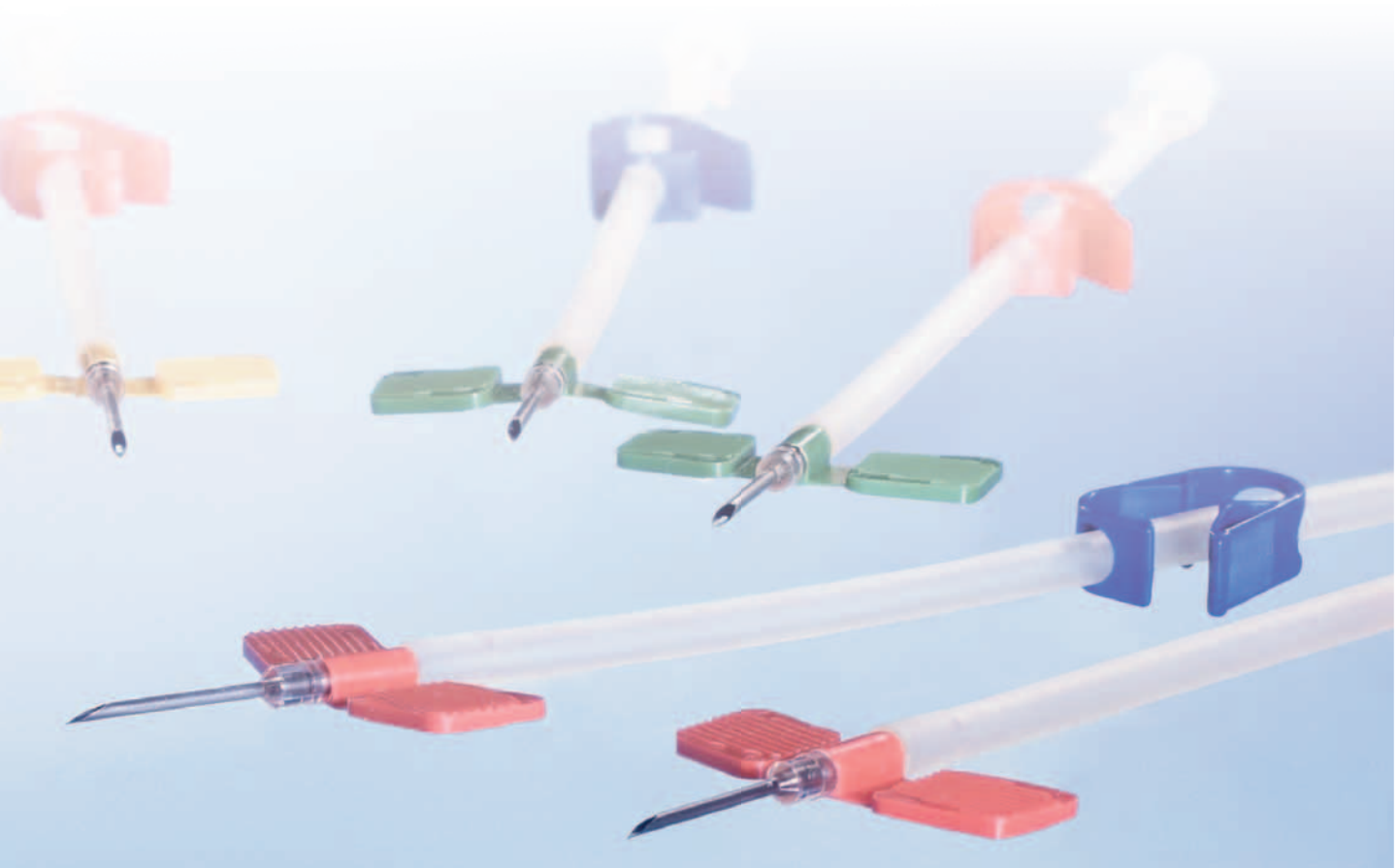


Figure 2: Impact of  $Q_B$  on urea clearance;  $Q_D = 500 \text{ mL/min}$ ,  $Q_{UF} = 0 \text{ mL/min}$



# Product Range

## Gamma-sterilised Fistula Needles

Colour code of wing	type	Needle (diameter x length)	Tubing length	Art. No.
<b>Standard needles</b>				
 14 G	A401G	2,0 x 20 mm	150	507 740 1
	V401G		150	507 840 1
 15 G	A511G	1,8 x 15 mm	150	507 751 1
	V511G		150	507 851 1
	A501G	1,8 x 20 mm	150	507 750 1
	V501G		150	507 850 1
	A551G	1,8 x 25 mm	150	507 755 1
	V551G		150	507 855 1
 16 G	A611G	1,6 x 15 mm	150	507 761 1
	V611G		150	507 861 1
	A601G	1,6 x 20 mm	150	507 760 1
	V601G		150	507 860 1
	A651G	1,6 x 25 mm	150	507 765 1
	V651G		150	507 865 1
 17 G	A711G	1,5 x 15 mm	150	507 771 1
	V711G		150	507 871 1
	A701G	1,5 x 20 mm	150	507 770 1
	V701G		150	507 870 1
<b>AV-Sets (containing arterial and venous needle)</b>				
15 G	AV501G	1,8 x 20 mm	150	507 950 1
16 G	AV601G	1,6 x 20 mm	150	507 960 1
17 G	AV701G	1,5 x 20 mm	150	507 970 1
15 G	AV552G	1,8 x 25 mm	300	507 655 1
16 G	AV652G	1,6 x 25 mm	300	507 665 1
17 G	AV752G	1,5 x 25 mm	300	507 676 1
<b>Single-needle cannula</b>				
15 G	SN500RG	1,8 x 20 mm	100	508 150 1
15 G	SN550RG	1,8 x 25 mm	100	508 155 1
16 G	SN600RG	1,6 x 20 mm	100	508 160 1
16 G	SN650RG	1,6 x 25 mm	100	508 165 1
17 G	SN700RG	1,5 x 20 mm	100	508 170 1





Further sizes and models are available upon request.

The dry silicone coating of the cannula reduces the risk of bleeding and ensures optimal wound healing.

All needles are provided with a convenient rotating wing.

# Product Range

## ETO-sterilised Fistula Needles

Colour code of wing		type	Needle (diameter x length)	Tubing length	Art. No.
<b>Standard needles</b>					
 14 G		A	2,0 x 25 mm	150	508244 1
		V		150	508257 1
		A		300	508249 1
		V		300	508262 1
 15 G		A	1,8 x 25 mm	150	508862 1
		V		150	508863 1
		A		300	508250 1
		V		300	508263 1
 16 G		A	1,6 x 25 mm	150	508864 1
		V		150	508865 1
		A		300	508251 1
		V		300	508264 1
 17 G		A	1,5 x 25 mm	150	508866 1
		V		150	508867 1
		A		300	508252 1
		V		300	508265 1
<b>Single needle cannula</b>					
	14 G	SN	2.0 x 20 mm	100	508292 1
	15 G	SN	1.8 x 20 mm	100	508293 1
	16 G	SN	1.6 x 20 mm	100	508294 1

Further sizes and models are available upon request.

All needles are equipped with a rotating wing and are coated with silicone to reduce the risk of bleeding and ensure optimal wound healing.

A:	arterial needle
V:	venous needle
SN:	single needle
G:	gamma sterilisation

# Main Features of Fresenius Medical Care Fistula Needles

## Highest quality and reliability of all our products and services

Fistula needles are the crucial link between the patient and the dialysis machine. For this reason, all needles have to meet the requirements of highest quality, safety and comfort – both from the user's as well as from the patient's perspective.

The strict quality control procedures incorporated during the manufacturing processes ensure the highest reliability and safety of fistula needles from Fresenius Medical Care.



Figure 3: Black and red dots indicate the position of the needle even during the treatment.

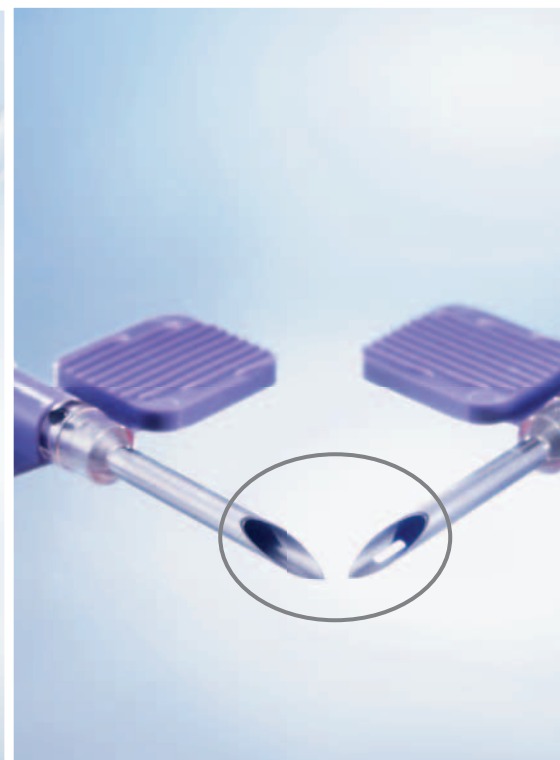


Figure 4: The special slit-formed back-eye of arterial- and single-needle minimizes the risk of aspiration to the vessel wall.

# Main Features of Fresenius Medical Care Fistula Needles

## Perfect geometry and optimised flow

The cutting edge of each needle has been bevelled and polished such that the sharp tip and the rounded trailing edge ensure optimal conditions for the cutting and stretching of the tissue. Thus, the patient benefits from minimised vessel-trauma and reduced pain during venopuncture. Furthermore, the special slit-formed back-eye of both, arterial- and single-needle prevents the suction of the needle to the inner wall of the shunt.

Due to the ultra-thin walls of the needles, larger inner lumen diameter can be achieved, thereby permitting maximum blood flow rates.

## Colour coded

All fistula needles from Fresenius Medical Care are equipped with a colour-coded wing that specifies the outer diameter of the cannula. A black dot indicates the bevelled side, while the red dot on the needle body signifies the bevel-down position. Thus the bevel-direction is always obvious with the punctured needle.

## Biocompatibility

All needles from Fresenius Medical Care are siliconised to reduce blood-material interactions. Our fistula needles are either gamma-sterilised or ETO-sterilised.



Figure 5: Color coded clamps for venous and arterial needle.



Figure 6 : Rotating wing design allows maximum control and easy gripping during cannulation.



**Fresenius Medical Care**

Fresenius Medical Care Deutschland GmbH · 61346 Bad Homburg v. d. H. · Germany · Phone: +49 (0) 6172-609-0 · Fax: +49 (0) 6172-609-2191  
Head office: Else-Kröner-Straße 1 · 61352 Bad Homburg v. d. H.

[www.fmc-ag.com](http://www.fmc-ag.com)