# Reinforced Dual Lumen Catheters

OriGen reinforced dual lumen catheters are indicated for use as a single cannula for both venous drainage and re-infusion of blood via the internal jugular vein during extracorporeal life support procedures.



The OriGen reinforced dual lumen catheter will be available in the following sizes: 13F, 16F, 19F, 23F, 28F and 32F



Each catheter is made of wire-reinforced PEBAX® and is supplied with a blunt introducer. This new catheter is an improvement from the previous design, and these new features include:

- A softer polymer material, called PEBAX®, to improve recovery from kinking.
- Wire-reinforcing along the body of the cannula to increase the resistance to collapse and kinking.
- A new tip and reinfusion port design to reduce recirculation.

The OriGen reinforced dual lumen catheter is ideally suited for the simultaneous drainage and re-infusion of blood through the internal jugular vein during ECMO procedures. This new catheter design has the right combination of flexibility, bend radius, collapse resistance and recovery from kinking to be ideal for ECMO with centrifugal pumps.



**Introducer:** Each reinforced dual lumen catheter is supplied with a blunt introducer to aid in catheter placement via cutdown. If cutdown is not desired, a separate percutaneous introducer kit is available with all the necessary guidewires and introducers.

**Recirculation:** The drainage and re-infusion ports have been placed to reduce recirculation. Computer flow simulation and animal studies have been performed to support this.

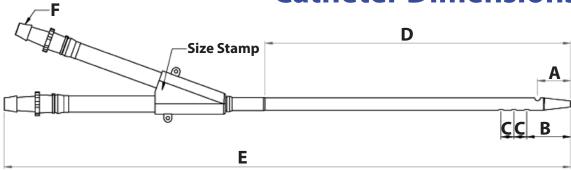
**Tip diameter:** The reinforced dual lumen catheter has a consistent diameter over the length of the body, but there is some extra reinforcement at the hub.

Lumen size: The inserted tip is divided internally so that the drainage lumen has a cross-section area roughly twice that of the return lumen.

**Material:** The reinforced dual lumen catheter is PEBAX® except for the polyurethane and polycarbonate connector tubes. The tip section is radiopaque.

**Priming:** The reinfusion lumen is supplied with a self-sealing vent plug to vent air and then seal during insertion, without having to clamp the catheter, to help de-air the catheter.

# **Catheter Dimensions**



		Catheter Outer diameter		meter	(A)Tip to Reinfusion (B)Tip		(B)Tip t	o First Return	hole spacing	
Order Code	Size	Fr.	mm	in	mm	in	mm	in	mm	in
V V 13F	13F	13	4.47	0.167	18.0	0.65	21.8	0.86	5.1	0.20
		(D)Insertable	e lenath	(E)Overa	II length	(F)Connecto	or size	Priming volu	me, mls	
		mm	in	mm	in	(i /comicet	JI JILC		enous	
		83	3.3	221	8.7	1/4 ir	n	2.0	2.4	7
		Catheter	Outer dia	meter	(A)Tip to	Reinfusion	(B)Tip t	o First Return	(C)Return	hole spacing
Order Code	Size	Fr.	mm	in	mm	in	mm	in	mm	in
V V 16F	16F	16	5.33	0.210	17.0	0.60	22.1	0.80	6.1	0.24
		(D)Insertable	e length	(E)Overa	II length	(F)Connecto	or size	Priming volui	me, mls	
		mm	in	mm	in				'enous	
		97	3.8	257	10.1	1/4 ir	ı	4.6	5.4	
		Catheter	Outer dia	meter	(A)Tip to	Reinfusion	(B)Tip t	o First Return	(C)Return	hole spacing
Order Code	Size	Fr.	mm	in	mm	in	mm		mm	in
V V 19F	19F	19	6.43	0.253	19.6	0.69	22.9	0.82	7.1	0.28
		(D)Insertable	e length	(E)Overa	II length	(F)Connecto	or size	Priming volu	me, mls	
		mm	in	mm	in				enous/	
		137	5.4	295	11.6	1/4 iı	۱	5.6	6.9	
		'37	Э.Т	275	11.0	17 - 11		3.0	0.5	1
						.,				
Out. Code	6:	Catheter	Outer dia	ameter	(A)Tip to	Reinfusion	(B)Tip t	o First Return	(C)Return	
Order Code	Size	<b>Catheter</b> Fr.	Outer dia	a <b>meter</b> in	(A)Tip to	Reinfusion in	(B)Tip t	o First Return in	(C)Return mm	in
Order Code V V 23F	Size 23F	Catheter Fr. 23	Outer dia mm 7.57	in 0.298	(A)Tip to mm 20.3	Reinfusion in 0.80	(B)Tip t mm 27.4	to First Return in 1.08	(C)Return mm 8.1	
		Catheter Fr. 23 (D)Insertable	Outer dia mm 7.57 e length	in 0.298 (E)Overa	(A)Tip to mm 20.3	Reinfusion in	(B)Tip t mm 27.4	o First Return in 1.08 Priming volu	(C)Return mm 8.1 me, mls	in
		Catheter Fr. 23 (D)Insertable	Outer dia mm 7.57 e length in	in 0.298 (E)Overa	(A)Tip to mm 20.3 all length in	Reinfusion in 0.80 (F)Connecto	(B)Tip t mm 27.4 or size	o First Return in 1.08 Priming volu Art. V	(C)Return mm 8.1 me, mls	in
		Catheter Fr. 23 (D)Insertable	Outer dia mm 7.57 e length	in 0.298 (E)Overa	(A)Tip to mm 20.3	Reinfusion in 0.80	(B)Tip t mm 27.4 or size	o First Return in 1.08 Priming volu	(C)Return mm 8.1 me, mls	in
		Catheter Fr. 23 (D)Insertable mm 187	Outer dia mm 7.57 e length in 7.4	in 0.298 (E) Overa mm 373	(A)Tip to mm 20.3 Ill length in 14.7	PReinfusion in 0.80 (F)Connected 3/8 in	(B)Tip t mm 27.4 or size	o First Return in 1.08 Priming volum Art. V 12.5	(C)Return mm 8.1 me, mls /enous 15.1	in 0.32
V V 23F	23F	Catheter Fr. 23 (D)Insertable mm 187	Outer dia mm 7.57 e length in 7.4 Outer dia	in 0.298 (E)Overa mm 373	(A)Tip to mm 20.3 Ill length in 14.7 (A)Tip to	Reinfusion in 0.80 (F)Connecto 3/8 in	(B)Tip t mm 27.4 or size	o First Return in 1.08 Priming volu Art. 12.5	(C)Return mm 8.1 me, mls renous 15.1 (C)Return	in 0.32 hole spacing
V V 23F Order Code	23F Size	Catheter Fr. 23 (D)Insertable mm 187  Catheter Fr.	Outer dia mm 7.57 e length in 7.4  Outer dia mm	in 0.298 (E)Overa mm 373	(A)Tip to mm 20.3 Ill length in 14.7	Reinfusion in 0.80 (F)Connecto 3/8 in Reinfusion in	(B)Tip to 27.4  or size  (B)Tip to mm	o First Return in 1.08 Priming volu Art. 12.5 Co First Return in	(C)Return mm 8.1 me, mls renous 15.1 (C)Return mm	in 0.32 hole spacing in
V V 23F	23F	Catheter Fr. 23 (D)Insertable mm 187  Catheter Fr. 28	Outer dia mm 7.57 e length in 7.4  Outer dia mm 9.35	in 0.298 (E) Overa mm 373  ameter in 0.368	(A)Tip to mm 20.3 Ill length in 14.7 (A)Tip to mm 24.9	Reinfusion in 0.80 (F)Connecto 3/8 in Reinfusion in 0.98	(B)Tip to mm 27.4 or size (B)Tip to mm 33.0	o First Return in 1.08 Priming volum Art. 12.5  o First Return in 1.30	(C)Return  mm  8.1  me, mls /enous 15.1  (C)Return  mm  9.7	in 0.32 hole spacing
V V 23F Order Code	23F Size	Catheter Fr. 23 (D)Insertable mm 187  Catheter Fr. 28 (D)Insertable	Outer dia mm 7.57 e length in 7.4  Outer dia mm 9.35 e length	in 0.298 (E)Overa mm 373  ameter in 0.368 (E)Overa	(A)Tip to mm 20.3 Ill length in 14.7 (A)Tip to mm 24.9	Reinfusion in 0.80 (F)Connecto 3/8 in Reinfusion in	(B)Tip to mm 27.4 or size (B)Tip to mm 33.0	o First Return in 1.08 Priming volum Art. V 12.5  o First Return in 1.30 Priming volum	(C)Return 8.1 me, mls fenous 15.1 (C)Return mm 9.7 me, mls	in 0.32 hole spacing in
V V 23F Order Code	23F Size	Catheter Fr. 23 (D)Insertable mm 187  Catheter Fr. 28 (D)Insertable mm	Outer dia mm 7.57 e length in 7.4  Outer dia mm 9.35 e length in	mmeter in 0.298 (E)Overa mm 373  meter in 0.368 (E)Overa mm	(A)Tip to mm 20.3 Ill length in 14.7 (A)Tip to mm 24.9 Ill length in	Reinfusion in 0.80 (F)Connecto 3/8 in Reinfusion in 0.98 (F)Connecto	(B)Tip to 27.4  or size  (B)Tip to mm 33.0  or size	ro First Return in 1.08 Priming volum Art. V 12.5 ro First Return in 1.30 Priming volum Art. V	(C)Return 8.1 me, mls /enous 15.1 (C)Return mm 9.7 me, mls /enous	in 0.32 hole spacing in
V V 23F Order Code	23F Size	Catheter Fr. 23 (D)Insertable mm 187  Catheter Fr. 28 (D)Insertable	Outer dia mm 7.57 e length in 7.4  Outer dia mm 9.35 e length	in 0.298 (E)Overa mm 373  ameter in 0.368 (E)Overa	(A)Tip to mm 20.3 Ill length in 14.7 (A)Tip to mm 24.9	Reinfusion in 0.80 (F)Connecto 3/8 in Reinfusion in 0.98	(B)Tip to 27.4  or size  (B)Tip to mm 33.0  or size	o First Return in 1.08 Priming volum Art. V 12.5  o First Return in 1.30 Priming volum	(C)Return 8.1 me, mls fenous 15.1 (C)Return mm 9.7 me, mls	in 0.32 hole spacing in
V V 23F Order Code	23F Size	Catheter Fr. 23 (D)Insertable mm 187  Catheter Fr. 28 (D)Insertable mm 231	Outer dia mm 7.57 e length in 7.4  Outer dia mm 9.35 e length in 9.1	in 0.298 (E)Overa mm 373  ameter in 0.368 (E)Overa mm 432	(A)Tip to mm 20.3 Ill length in 14.7  (A)Tip to mm 24.9 Ill length in 17.0	Reinfusion in 0.80 (F)Connecto 3/8 in 0.98 (F)Connecto 3/8 in	(B)Tip to 27.4  or size  (B)Tip to mm 33.0  or size	ro First Return in 1.08 Priming volum Art. V 12.5 FO First Return in 1.30 Priming volum Art. V 19.3	(C)Return 8.1 me, mls /enous 15.1 (C)Return mm 9.7 me, mls /enous 23.5	hole spacing in 0.38
V V 23F  Order Code V V 28F	23F Size 28F	Catheter Fr. 23 (D)Insertable mm 187  Catheter Fr. 28 (D)Insertable mm 231  Catheter	Outer dia mm 7.57 e length in 7.4  Outer dia mm 9.35 e length in 9.1  Outer dia	in 0.298 (E)Overa mm 373  ameter in 0.368 (E)Overa mm 432	(A)Tip to mm 20.3 Ill length in 14.7  (A)Tip to mm 24.9 Ill length in 17.0  (A)Tip to (A)	Reinfusion in 0.80 (F)Connecto 3/8 in 0.98 (F)Connecto 3/8 in 0.98 (F)Connecto	(B)Tip to mm 27.4  or size  (B)Tip to mm 33.0  or size	ro First Return in 1.08 Priming volum Art. V 12.5  To First Return in 1.30 Priming volum Art. V 19.3	(C)Return  8.1  me, mls /enous 15.1  (C)Return  mm 9.7  me, mls /enous 23.5  (C)Return	hole spacing in 0.38
V V 23F  Order Code V V 28F  Order Code	Size 28F	Catheter Fr. 23 (D)Insertable mm 187  Catheter Fr. 28 (D)Insertable mm 231  Catheter Fr.	Outer dia mm 7.57 e length in 7.4  Outer dia mm 9.35 e length in 9.1  Outer dia mm	in 0.298 (E)Overa mm 373 ameter in 0.368 (E)Overa mm 432	(A)Tip to mm 20.3 Ill length in 14.7  (A)Tip to mm 24.9 Ill length in 17.0  (A)Tip to mm	Reinfusion in 0.80 (F)Connecto 3/8 in 0.88 (F)Connecto 3/8 in 0.98 (F)Connecto 3/8 in 0.98 (F)Connecto	(B)Tip to mm 33.0 or size	ro First Return in 1.08 Priming volum Art. V 12.5 ro First Return in 1.30 Priming volum Art. V 19.3 ro First Return in	(C)Return  mm 8.1  me, mls /enous 15.1  (C)Return  mm 9.7  me, mls /enous 23.5  (C)Return  mm	hole spacing in 0.38 hole spacing in
V V 23F  Order Code V V 28F	23F Size 28F	Catheter Fr. 23 (D)Insertable mm 187  Catheter Fr. 28 (D)Insertable mm 231  Catheter Fr. 32	Outer dia mm 7.57 e length in 7.4  Outer dia mm 9.35 e length in 9.1  Outer dia mm 10.64	in 0.298 (E)Overa mm 373  ameter in 0.368 (E)Overa mm 432	(A)Tip to mm 20.3 Ill length in 14.7  (A)Tip to mm 24.9 Ill length in 17.0  (A)Tip to mm 27.9	Reinfusion in 0.80 (F)Connecto 3/8 in 0.98 (F)Connecto 3/8 in 0.98 (F)Connecto 1.10	(B)Tip to mm 27.4  or size  (B)Tip to mm 33.0  or size  (B)Tip to mm 35.1	ro First Return in 1.08 Priming volum Art. V 12.5  For First Return in 1.30 Priming volum Art. V 19.3  For First Return in 1.38	(C)Return  8.1  me, mls  /enous 15.1  (C)Return  mm  9.7  me, mls /enous 23.5  (C)Return  mm  11.2	hole spacing in 0.38
V V 23F  Order Code V V 28F  Order Code	Size 28F	Catheter Fr. 23 (D)Insertable mm 187  Catheter Fr. 28 (D)Insertable mm 231  Catheter Fr.	Outer dia mm 7.57 e length in 7.4  Outer dia mm 9.35 e length in 9.1  Outer dia mm 10.64	in 0.298 (E)Overa mm 373  ameter in 0.368 (E)Overa mm 432	(A)Tip to mm 20.3 Ill length in 14.7  (A)Tip to mm 24.9 Ill length in 17.0  (A)Tip to mm	Reinfusion in 0.80 (F)Connecto 3/8 in 0.88 (F)Connecto 3/8 in 0.98 (F)Connecto 3/8 in 0.98 (F)Connecto	(B)Tip to mm 27.4  or size  (B)Tip to mm 33.0  or size  (B)Tip to mm 35.1	ro First Return in 1.08 Priming volume Art. V 12.5 For First Return in 1.30 Priming volume Art. V 19.3 For First Return in 1.38 Priming volume 1.38	(C)Return  8.1  me, mls  /enous 15.1  (C)Return  mm  9.7  me, mls /enous 23.5  (C)Return  mm  11.2	hole spacing in 0.38 hole spacing in

Reference use only, tolerances apply

### **Product Code**

Product Code	Tip Diameter (F)
VV13F	13F
VV16F	16F
VV19F	19F
VV23F	23F
VV28F	28F
VV32F	32F

CAUTION: US Federal law restricts the sale and use of these devices by or on the order of a physician. Supplied sterile. For single use only. Read Instructions for Use before clinical use.

For percutaneous placement, all necessary guidewires, sharps and introducers are available packaged together. (Product Code: PCT for catheters 13F through 32F)

Pebax is a registered trademark of Arkema.

# OriGen

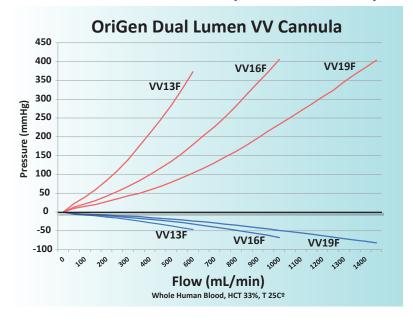
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# Flow Characteristics (VV13F - VV19F)



# Flow Characteristics (VV23F - VV32F)

