

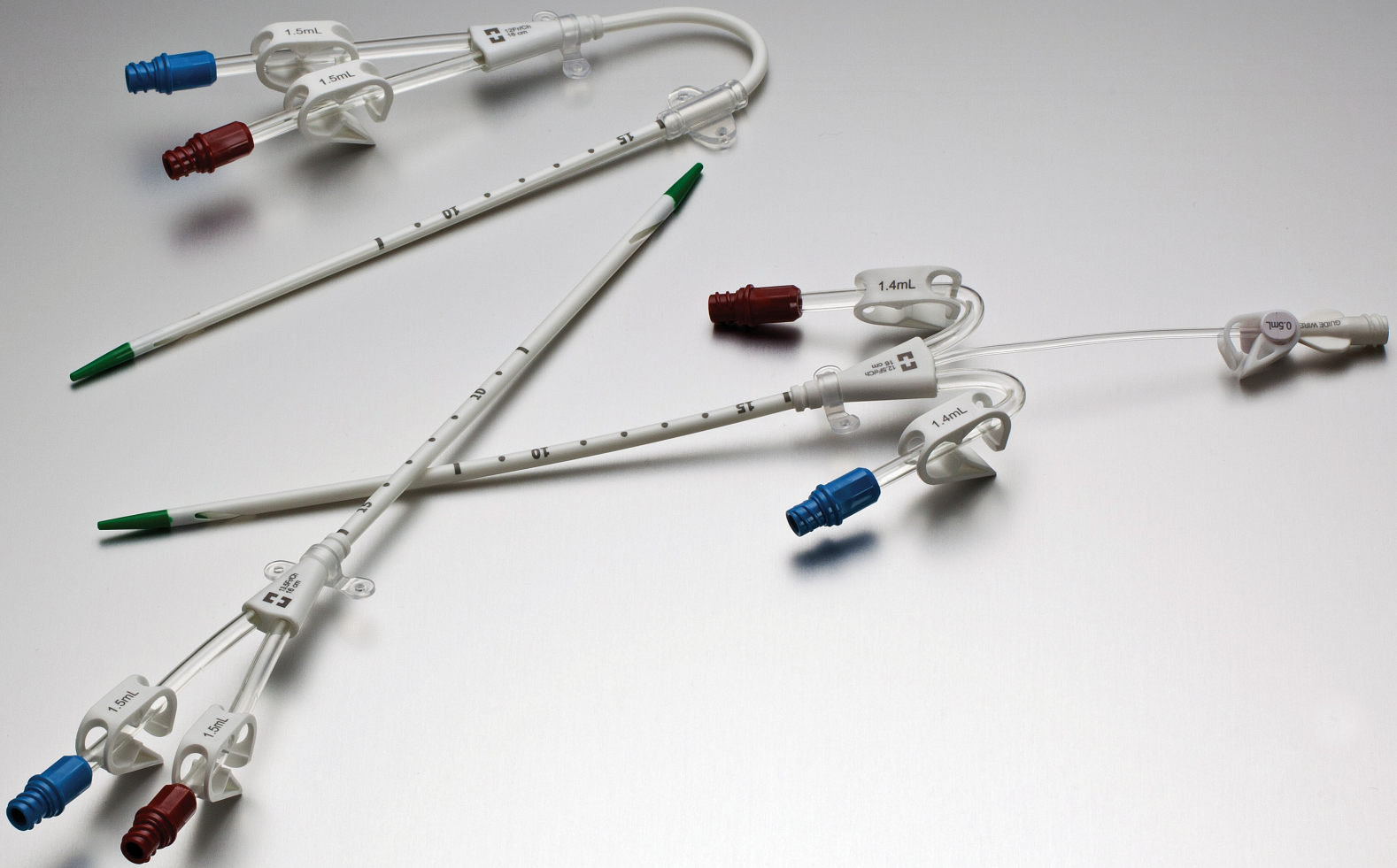
**Medtronic**

Engineering the extraordinary

One catheter  
family.  
A full spectrum  
of acute  
dialysis care.

MAHURKAR™\* Elite acute  
dialysis catheter family





## Efficiency of dialysis in reverse flow

### Less than one percent recirculation

Symmetrical tip design minimizes recirculation rates when in forward or reverse flow.<sup>1</sup>

### Maximize fluid flow with laser-cut side slots

Large laser-cut side slots wrap around catheter shaft, providing an open area for fluid to flow.

### Significant flow, minimal pressure

Lumen designs maximize the internal diameter to provide equal and consistent flow rates with low arterial pressures.<sup>1,†</sup>

## Easy to use

### During insertion

#### Thermosensitive polyurethane material

Provides rigidity during insertion, and softens at least 54 percent<sup>2</sup> post-insertion for vessel conformity and patient comfort.

#### Catheter shaft depth markings

Assist clinicians with a visual aid during catheter insertion.

#### Reinforced catheter hub

Reduces the likelihood of kinking in difficult vasculature and insertions.<sup>2,†</sup>

### During treatment

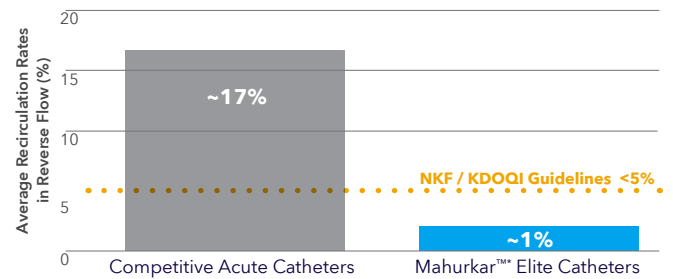
#### High flow rates

Maintain high flow and provide adequate dialysis doses when needed.

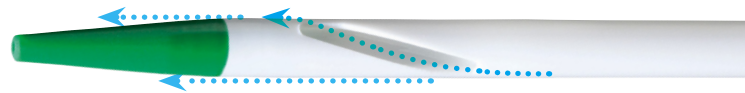
#### Multiple pre-curved catheter shaft configurations

Increase insertion and patient comfort options.

†Based on preclinical bench data. Results may not correlate with clinical performance in humans.



17% recirculation is the average of tested catheters. Tested catheters included: GamCath HighFlow Dolphin™, Arrow™ 14Fr Dual Lumen, Medcomp Duo-Flow™ and Tri-Flow™ AngioDynamics Schon XL™, Bard Power Trialysis™ & Niagara™<sup>1</sup>



Double-D™ Design



Modified Double-D™ Design

# MAHURKAR™\* Elite acute catheter family



19G third lumen  
(MAHURKAR™\* triple lumen catheters)

Laser-etched priming volumes on clamps

Reinforced hub to reduce the likelihood of kinking during difficult insertions<sup>2,†</sup>  
Catheter sizing on hub

Depth markings for ease of use as a visual insertion guide

Lumen designs maximize the internal diameter to provide equal and consistent flow rates with low arterial pressures<sup>†</sup>



Modified Double-D™ Design



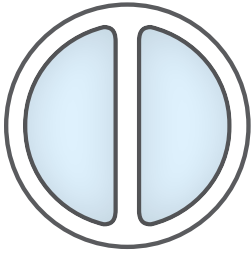
Double-D™ Design

## Large laser-cut side slots:

Maximize passageway for fluid flow<sup>1</sup>

Symmetrical tip design has low recirculation in forward and reverse flow<sup>1</sup>

<sup>†</sup>Based on preclinical bench data. Results may not correlate with clinical performance in humans.



Double-D™ Design

## MAHURKAR™ Elite 13.5Fr high flow dual lumen catheter

Consistently achieves flow rates up to 450 mL/min<sup>1,†</sup>

### Indications

- Hemodialysis
- Apheresis
- Infusion

## MAHURKAR™ Elite 12Fr dual lumen catheter

Consistently achieves flow rates up to 400 mL/min<sup>1</sup>

- Benchtop testing shows symmetrical tip design minimizes recirculation rates to < 1 percent in forward and reverse flows.<sup>1</sup>
- Shaft softens at least 54 percent<sup>2</sup> post-insertion for vessel conformity and patient comfort.
- Large Double-D™ lumen design maximizes the internal diameter to provide equal and consistent flow rates with low arterial pressures.<sup>1,†</sup>
- Large laser-cut side slots provide smooth edges to maximize fluid flow.
- Reinforced hub minimizes kinking in difficult vasculature.<sup>2,†</sup>



Modified  
Double-D™ Design

## MAHURKAR™ Elite 12.5Fr triple lumen catheter

Consistently achieves flow rates up to 400 mL/min<sup>1</sup>

### Indications

- Hemodialysis
- Apheresis
- Infusion
- High pressure contrast injection
- Central venous pressure monitoring

- Benchtop testing shows symmetrical tip design minimizes recirculation rates to < 1 percent in forward and reverse flows.<sup>1</sup>
- Modified Double-D™ lumen design maximizes the internal diameter to provide equal and consistent flow rates with low arterial pressures.<sup>1,†</sup>
- Third lumen (19G) facilitates central venous pressure monitoring, blood sampling, high pressure injection of contrast media, and infusion of fluid, blood products, or medication. The presence of a third lumen does not compromise flow rates or increase the chance of catheter related blood stream infections.<sup>3</sup>
- The third lumen helps preserve patient vascular access by reducing the need for PICC line placements.
- Large laser-cut side slots provide smooth edges to maximize fluid flow.
- Reinforced hub minimizes kinking in difficult vasculature.<sup>2,†</sup>

†Based on preclinical bench data. Results may not correlate with clinical performance in humans.

# Ordering information

A variety of catheter sizes and configurations to accommodate various insertion sites and patient needs

## MAHURKAR™ Elite 12Fr dual lumen catheters

	Straight Extensions	Curved Extensions	Pre-Curved Shafts	Description	Qty/ Carton
CATHETERS	8888221113	8888222113	8888223113	12Fr x 13 cm	5
	8888221116	8888222116	8888223116	12Fr x 16 cm	5
	8888221120	8888222120	8888223120	12Fr x 20 cm	5
	8888221124	8888222124		12Fr x 24 cm	5
	8888221130			12Fr x 30 cm	5
KITS	8888221213	8888222213	8888223213	12Fr x 13 cm	5
	8888221216	8888222216	8888223216	12Fr x 16 cm	5
	8888221220	8888222220	8888223220	12Fr x 20 cm	5
	8888221224	8888222224		12Fr x 24 cm	5
	8888221230			12Fr x 30 cm	5
IC TRAYS	8888221313	8888222313	8888223313	12Fr x 13 cm	5
	8888221316	8888222316	8888223316	12Fr x 16 cm	5
	8888221320	8888222320	8888223320	12Fr x 20 cm	5
	8888221324	8888222324		12Fr x 24 cm	5
	8888221330			12Fr x 30 cm	5
PASS TRAYS	8888221413	8888222413	8888223413	12Fr x 13 cm	1
	8888221416	8888222416	8888223416	12Fr x 16 cm	1
	8888221420	8888222420	8888223420	12Fr x 20 cm	1
	8888221424	8888222424		12Fr x 24 cm	1
	8888221430			12Fr x 30 cm	1

## MAHURKAR™ Elite 13.5Fr high flow dual lumen catheters

	Straight Extensions	Curved Extensions	Pre-Curved Shafts	Description	Qty/ Carton
CATHETERS	8888211113	8888212113	8888213113	13.5Fr x 13 cm	5
	8888211116	8888212116	8888213116	13.5Fr x 16 cm	5
	8888211120	8888212120	8888213120	13.5Fr x 20 cm	5
	8888211124	8888212124		13.5Fr x 24 cm	5
	8888211130			13.5Fr x 30 cm	5
KITS	8888211213	8888212213	8888213213	13.5Fr x 13 cm	5
	8888211216	8888212216	8888213216	13.5Fr x 16 cm	5
	8888211220	8888212220	8888213220	13.5Fr x 20 cm	5
	8888211224	8888212224		13.5Fr x 24 cm	5
	8888211230			13.5Fr x 30 cm	5
IC TRAYS	8888211313	8888212313	8888213313	13.5Fr x 13 cm	5
	8888211316	8888212316	8888213316	13.5Fr x 16 cm	5
	8888211320	8888212320	8888213320	13.5Fr x 20 cm	5
	8888211324	8888212324		13.5Fr x 24 cm	5
	8888211330			13.5Fr x 30 cm	5
PASS TRAYS	8888211413	8888212413	8888213413	13.5Fr x 13 cm	1
	8888211416	8888212416	8888213416	13.5Fr x 16 cm	1
	8888211420	8888212420	8888213420	13.5Fr x 20 cm	1
	8888211424	8888212424		13.5Fr x 24 cm	1
	8888211430			13.5Fr x 30 cm	1

## MAHURKAR™ Elite 12.5Fr triple lumen catheters

	Straight Extensions	Curved Extensions	Description	Qty/ Carton
CATHETERS	8888231113	8888233113	12.5Fr x 13 cm	5
	8888231116	8888233116	12.5Fr x 16 cm	5
	8888231120	8888233120	12.5Fr x 20 cm	5
	8888231124	8888233124	12.5Fr x 24 cm	5
	8888231130		12.5Fr x 30 cm	5
KITS	8888231213	8888233213	12.5Fr x 13 cm	5
	8888231216	8888233216	12.5Fr x 16 cm	5
	8888231220	8888233220	12.5Fr x 20 cm	5
	8888231224	8888233224	12.5Fr x 24 cm	5
	8888231230		12.5Fr x 30 cm	5
IC TRAYS	8888231313	8888233313	12.5Fr x 13 cm	5
	8888231316	8888233316	12.5Fr x 16 cm	5
	8888231320	8888233320	12.5Fr x 20 cm	5
	8888231324	8888233324	12.5Fr x 24 cm	5
	8888231330		12.5Fr x 30 cm	5
PASS TRAYS	8888231413	8888233413	12.5Fr x 13 cm	1
	8888231416	8888233416	12.5Fr x 16 cm	1
	8888231420	8888233420	12.5Fr x 20 cm	1
	8888231424	8888233424	12.5Fr x 24 cm	1
	8888231430		12.5Fr x 30 cm	1

Components	Qty	Catheter	Kits	IC Trays	Pass Trays
Catheter	1	●	●	●	●
18G Introducer needle	1		●	●	
18G Safety introducer needle	1				●
Hypodermic needles (18G, 22G, 25G)	3			●	
Magellan™ safety needles (18G, 22G, 25G)	3				●
J/Straight 0.035 in x 70 cm guide-wire with thumb advancer	1		●	●	●
Removable suture wing (pre-curved catheters only)	1	●	●	●	●
Tissue dilator, 10Fr	1		●	●	●
Tissue dilator, 12Fr (12Fr and 12.5Fr catheters only)	1		●	●	●
Tissue dilator, 14Fr (13.5Fr catheter only)	1		●	●	●
6mL Luer lock syringes	2			●	●
3mL Luer lock syringes (three provided with 12.5Fr catheter)	2			●	●
#11 Scalpel	1			●	
Retractable safety scalpel: #11 blade	1				●
2.0 Nylon suture with curved needle	1			●	●
Large 72 in x 76 in fenestrated drape	1			●	
Large 110 in x 68 in fenestrated drape	1				●
5mL Ampule Lidocaine 1%	1			●	●
Needle holder	1			●	●
Excilon™ AMD antimicrobial drain sponges	1				●
ChloraPrep™ applicator wand (3 mL) (two included with pass tray)	1			●	●
Telfa™ Island dressings	2		●	●	●
Gauze sponges	6			●	●
Monoject™ safety syringes prefill advanced 10 mL, 0.9% saline flush for sterile delivery	2				●
Filter straw	1				●
Drug label sheet	1				●
Instructional insert	1				●
Sealing caps (three provided with 12.5Fr catheter)	2	●	●	●	●
Needle safety container	1			●	
Surgical bouffant cap	1				●
Surgical face mask	1				●
Surgical gown	1				●
Pair gloves	1				●

## MAHURKAR™ Elite catheter features



Catheter size on hub



Priming volume on clamps



Depth markings

Utilize the Medtronic customer service department for all catheter orders: 800-962-9888



1. Based on Internal Test Report 50136-180-MS-12. 2012.
2. Based on Internal Test Report 50136-155-MS-11. 2011.
3. Contreras G1, Liu PY, Elzinga L, et al. A multicenter, prospective, randomized, comparative evaluation of dual-versus triple-lumen catheters for hemodialysis and apheresis in 485 patients. *Am J Kidney Dis.* 2003;42(2):315-324.

### MAHURKAR™ Elite Acute Dialysis Catheters

The MAHURKAR™ Elite catheter is intended for short-term central venous access for hemodialysis, apheresis, infusion, central venous pressure monitoring and pressure injection of contrast media. The maximum infusion rate is 5ml/sec for power injection of contrast media.

Remove the catheter as soon as it is no longer needed and for femoral inserted catheters they should not be implanted longer than three to four days maximum per K-DQI guidelines. Do not use catheter in thrombosed vessels or for subclavian puncture when a ventilator is in use.

#### Potential adverse reactions:

Potential risks may include catheter thrombosis, exit site infection, air embolism or cardiac arrhythmia upon insertion.

See the device manual for detailed information regarding the implant procedure, indications, contraindications, warnings, precautions, and potential complications/adverse events. For further information, please call Medtronic, in the United States call 1-800-962-9888 and for international inquiries, call 508-261-8000, and/or consult Medtronic's website at [www.medtronic.com/dialysis-access](http://www.medtronic.com/dialysis-access).

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