

Charbel Intracranial Micro-Flowprobes®

Cerebrovascular surgery seeks to preserve blood flow in intracranial vessels or augment flow to cerebral territories during:

- **Aneurysm Obliteration Surgery:**
Quantitative flow data guides clip placement for full preservation of flow in parent vessels and distal branches.
- **Arteriovenous Malformation (AVM) Resection Surgery:**
Flow data guide surgical resection by clarifying ICG-VA visualization; discriminating between deep small arterial feeders and venous drainages, and identifying transit arteries and residual nidus.
- **Revascularization (EC-IC Bypass) Surgery for Occlusive Disease:** Flow measurement quantifies an increase in cerebral flow after revascularization. Intraoperative volume flow measurements assure the integrity of cerebral flows or alert the surgeon to dangerous flow deficits while decreasing the need for disruptive intraoperative angiography. Measurements also provide documentation of flow for the patient's record.

Intracranial Flowprobe



Fig. 1: The Charbel Micro-Flowprobe® is designed for deep intracranial surgery. Their long bayonet handle permits use under a surgical microscope. A flexible neck segment permits the Flowprobe neck to be bent, as needed, to optimally position the probe around a vessel.

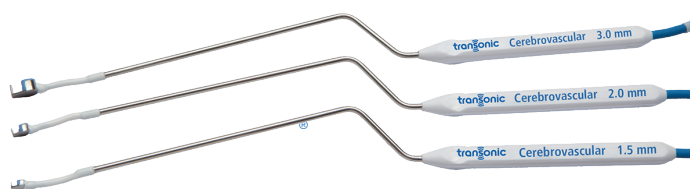


Fig. 2: Charbel Micro-Flowprobes® are available in 1.5, 2 and 3 mm sizes.

INTRACRANIAL PROBE SPECIFICATIONS		
PROBE	CATALOG #	VESSEL SIZE
size	x = N, D; k = R, B	outer diameter mm
1.5 mm	HQx 15Mk	1.0 - 1.5
2 mm	HQx 2Mk	1.5 - 2.7
3 mm	HQx 3Mk	2.5 - 3.7

-MB-Series Flowprobes ship pre-sterilized for use where Creutzfeldt-Jakobs disease transmission is a concern. -MR-Series Flowprobes are reusable (up to 16 sterilization cycles).

Charbel Extracranial Micro-Flowprobes®

A shorter bayonet handle MB-S and MB-R Micro Flowprobes are designed to be used under the microscope for extracranial vessels such as the superficial temporal artery during STA-MCA bypass surgery.

EXTRACRANIAL PROBE SPECIFICATIONS		
PROBE	CATALOG #	VESSEL SIZE
size	x = N, D; k = R, B	outer diameter mm
3 mm	HQx3 Mk-S	2.5 - 3.7
4 mm	HQx4 Mk-S	3.3 - 4.7
6 mm	HQx6 Mk-S	4.4 - 6.6

-MB-Series Flowprobes ship pre-sterilized for use where Creutzfeldt-Jakobs disease transmission is a concern. -MR-Series Flowprobes are reusable (up to 16 sterilization cycles).

Fig. 1: Comparison of Flowprobe bodies of intracranial Flowprobes (top) and extracranial Flowprobes.

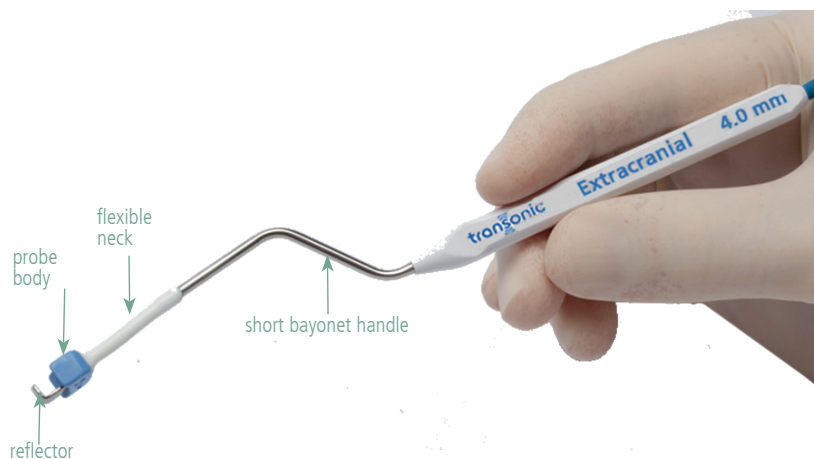


Fig. 2: -MB-S & -MR-S-Series Micro-Flowprobes (3 mm, 4 mm, 6 mm) feature a shorter bayonet handle and larger flowsensing body to be used during on extracranial vessels during EC-IC bypass surgery.



Fig. 3: Comparison of bayonet handles of the -MB-Series Charbel Micro-Flowprobes® for intracranial vessels and the -MB-S & -MR-S-Series Micro-Flowprobes for extracranial vessels during EC-IC bypass surgery.



Transonic Systems Inc. is a global manufacturer of innovative biomedical measurement equipment. Founded in 1983, Transonic sells "gold standard" transit-time ultrasound flowmeters and monitors for surgical, hemodialysis, pediatric critical care, perfusion, interventional radiology and research applications. In addition, Transonic provides pressure and pressure volume systems, laser Doppler flowmeters and telemetry systems.

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