

Surgical Flowprobes & Tubing Flowsensors

The Largest Selection of Flowprobes Available



Transonic's application-customized Flowprobes measure volume flow in blood vessels, grafts, and ducts from 0.5mm to 36mm to:

- Quantify blood flow(s)
- Identify flow deficits early
- Help guide surgical decision making

Microsurgical Flowprobes

Flaps • Reattachments

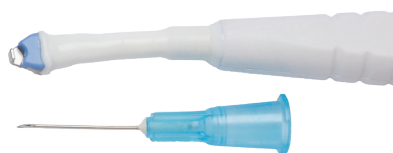
Transonic® Microsurgical Flowprobes measure volume flow in blood vessels, grafts, and ducts (lymph) from 0.5 to 4.0 mm in diameter. Flow measurement in these vessels during microvascular procedures quantifies flows in the smallest vessels in order to objectively assess the quality of the reconstruction or reattachment, guide better surgical decisions, and give the surgeon the opportunity to correct otherwise undetectable flow restrictions before closing the patient. Due to extreme accuracy requirements, this Microsurgical Flowprobe Series is only available with the Optima Flowmeter.



Microvascular Flowprobe (2 mm) showing handle and flexible probe neck for easy positioning of the Flowprobe around a vessel.



Ultrasonic sensing windows of Microvascular Flowprobe (MU) Series.



Side-by-side comparison of a 0.7 mm Flowprobe with a 25g. needle.

MU-Series: Microvascular Probes (short handle, L-reflector)		
PROBE SIZE	VESSEL RANGE OUTER DIAMETER	CATALOG #
0.7mm	0.5 - 0.73 mm	HQF0.7MU
1mm	0.76 - 1.1 mm	HQF1MU
1.5mm	1.1 - 1.7 mm	HQF1.5MU
2mm	1.6 - 2.8 mm	HQF2MU
3mm	2.6 - 3.8 mm	HQF3MU



Microvascular Flowprobe (-MU) Series including 0.7mm, 1mm, 1.5mm, 2mm, and 3mm Flowprobes.

Cardiac Flowprobes

Coronary Artery Grafts • Ascending Aorta

Transonic® Cardiac Flowprobes include FMC-Series Flowprobes for coronary artery bypass grafting surgery and COnfidence Flowprobes® for continuous measurement on great vessels with turbulent flows.

Coronary Flowprobes



FMC-Series Coronary Handle Flowprobes are available in sizes 1.5mm to 4mm. They feature a J-style reflector designed for spot flow checks of coronary artery bypass grafts, and an extended curved neck with a flexible end segment to access hard-to-reach coronary grafts behind the heart.

FMC-Series: Coronary steam sterilizable Probes (long handle, J-reflector)		
PROBE SIZE	VESSEL RANGE OUTER DIAMETER	CATALOG #
1.5mm	1.5 - 2.3mm	HQF1.5FMC
2mm	2.0 - 3.0mm	HQF2FMC
3mm	2.7 - 4.0mm	HQF3FMC
4mm	3.0 - 5.0mm	HQF4FMC



Pictured, from left to right, are 1.5mm, 2mm, 3mm, and 4mm coronary Flowprobes showing their blue Probe bodies, J-style reflectors, and ultrasonic sensing windows.

Non-handle COnfidence Flowprobes®

AU-Series COnfidence Flowprobes® consist of a Flowprobe shell and a soft, flexible, single-use Ultrafit liner. This novel ultrasonic signal coupling concept enables immediate, beat-to-beat flow measurements with minimal ultrasonic coupling gel needed. The form-fitting Ultrafit Liner slips into the transducer shell, encircling and keeping the vessel in place while cushioning and protecting it. Liners are incrementally sized for an optimal fit on the target vessel.

AU-Series: COnfidence Flowprobes Size 8-36 available with HQF prefix 50 use; Size 4 & 6 available with HQE 8 use		
PROBE SIZE	VESSEL RANGE OUTER DIAMETER	CATALOG #
4mm	3 - 4mm	HQE4AU
6mm	5 - 6mm	HQE6AU
8mm	6 - 8mm	HQF8AU
10mm	8 - 10mm	HQF10AU
12mm	9 - 12mm	HQF12AU
14mm	11 - 14mm	HQF14AU
16mm	13 - 16mm	HQF16AU
20mm	15-18 w/ 18mm insert 17-20 w/ 20mm insert	HQF20AU
24mm	18-22 w/ 22mm insert 20-24 w/ 24mm insert	HQF24AU
28mm	22-26 w/ 26mm insert 24-28 w/ 28mm insert	HQF28AU
32mm	26-30 w/ 30mm insert 28-32 w/ 32mm insert	HQF32AU
36mm	30-34 w/ 34mm insert 32-36 w/ 36mm insert	HQF36AU



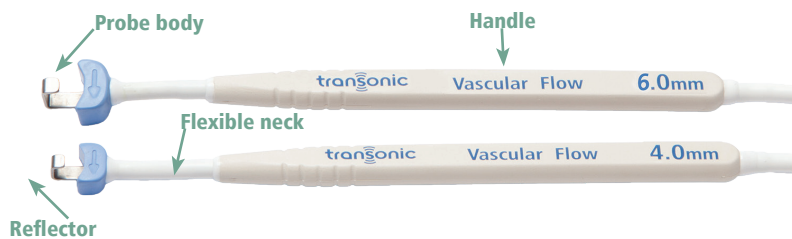
COnfidence Flowprobes® (-AU-Series), designed with four transducers, provide highly accurate measurements in vessels with highly turbulent flows such as the ascending aorta. The Flowprobe's slim, ergonomic profile has a minimal footprint that fits in tight anatomical sites. Its soft, pliable liner cushions and protects the vessel. Available in 17 sizes from 4 mm to 36 mm.

Vascular/Transplant Flowprobes

Peripheral Vascular • Transplant • Carotid Endarterectomy

Transonic's spectrum of Vascular Flowprobes measure volume flows intraoperatively in vessels, grafts, and ducts from 1.5mm to 14mm vessel diameter to detect blood flow obstructions before leaving the operating room. In critical transplant surgeries, intraoperative flow measurements can guide surgical decisions to ensure vessel patency prior to closing. The ability to correct otherwise undetectable flow restrictions provides the surgeon with a unique opportunity to improve the outcome for his or her patient.

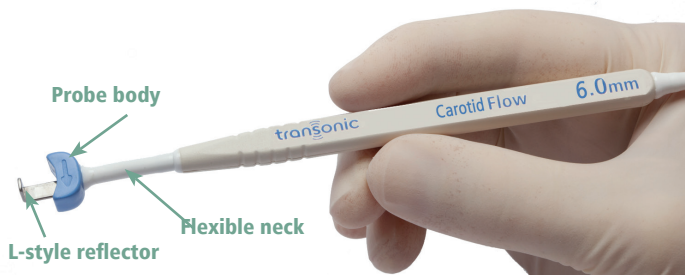
Vascular Handle Flowprobes



FMV-Series 4 and 6mm Vascular Flowprobes are recommended for measuring hepatic arterial flows. The vessel is positioned within the Probe sensing window that is defined by the Probe body and its stationary reflector.

FMV-Series: Vascular steam sterilizable Probes (short handle, J-reflector)		
PROBE SIZE	VESSEL RANGE OUTER DIAMETER	CATALOG #
1.5mm	1.5 - 2.3mm	HQF1.5FMV
2mm	2.0 - 3.0mm	HQF2FMV
3mm	2.7 - 4.0mm	HQF3FMV
4mm	3.0 - 5.0mm	HQF4FMV
6mm	4.0 - 7.3mm	HQF6FMV
8mm	6.4 - 9.8mm	HQF8FMV
10mm	8.0 - 12.0mm	HQF10FMV
12mm	9.5 - 15.0mm	HQF2FMV
14mm	11.8 - 17.3mm	HQF14FMV

Carotid Flowprobes



FME-Series Flowprobes in sizes 1.5 to 10mm sizes feature an L-shaped reflector that allows the probe to be slipped on and off a carotid artery easily, facilitating quick pre- and post-procedure measurements while protecting against dislodging of plaque during application of the Flowprobe.

FME-Series: Carotid Endarterectomy steam sterilizable Probes (short handle, L-reflector)		
PROBE SIZE	VESSEL RANGE OUTER DIAMETER	CATALOG #
1.5mm	1.5 - 2.3mm	HQF1.5FME
2mm	2.0 - 3.0mm	HQF2FME
3mm	2.7 - 4.0mm	HQF3FME
4mm	3.0 - 5.0mm	HQF4FME
6mm	4.0 - 7.3mm	HQF6FME
8mm	6.4 - 9.8mm	HQF8FME
10mm	8.0 - 12.0mm	HQF10FME

AU-Flowprobes for Continuous Flow Measurements



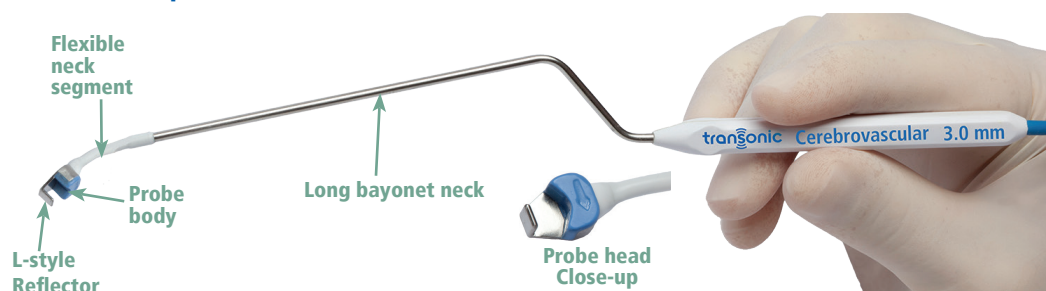
AU-Series Flowprobes, in sizes from 4-16mm, are also ideal for measuring continuous flows in the portal vein during liver transplantation or during other surgeries.

Cerebrovascular Flowprobes

Aneurysm Clipping • EC-IC Bypass • AVMs • Fistulas

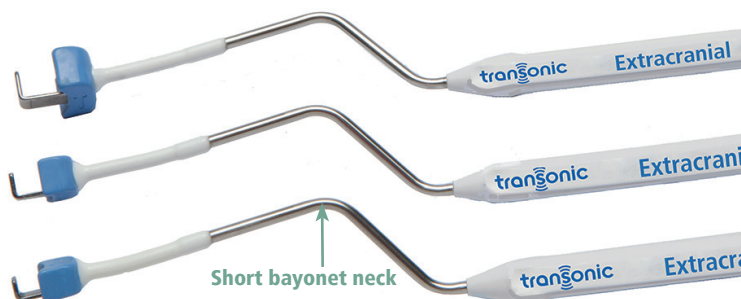
Transonic® Cerebrovascular (Charbel) Micro-Flowprobes® measure volume flow in intracranial and extracranial vessels during cerebrovascular flow preservation or flow augmentation surgeries. Intraoperative measurements of volume flow assure the integrity of cerebral flow or they alert the surgeon to dangerous flow deficits at a time when every minute counts. Available as single use (pre-sterilized MB, MB-S) or 16-use (MR, MR-S) flowprobes.

Intracranial Flowprobes



Long bayonet neck intracranial Charbel Micro-Flowprobes® are available in three sizes: 1.5mm, 2mm, and 3mm to measure flow in major intracranial vessels of the Circle of Willis/ Their L-style reflector slips around the vessel under study, and a flexible neck segment permits bending the Flowprobe as needed to most easily position the probe around the vessel. The Charbel Micro-Flowprobes' long bayonet neck permits use under a surgical microscope.

Extracranial Flowprobes



Short bayonet neck extracranial Charbel Flowprobes® are available in three sizes, 3mm, 4mm, and 6mm for extracranial vessels such as the superior temporal artery during extracranial-intracranial (EC-IC) bypass surgeries. Their short bayonet neck permits use under a surgical microscope and a flexible neck segment permits bending the Flowprobe as needed to precisely position the probe around the vessel.

Intracranial/Extracranial Probe Comparison



Side-by-side comparison between an intracranial Charbel Micro-Flowprobe with a long bayonet neck and an extracranial Charbel Flowprobe with a shorter neck that is used during extracranial-intracranial (EC-IC) bypass surgery.

MB-Series: Intracranial Charbel Micro-Flowprobes (long handle, single use)		
PROBE SIZE	VESSEL RANGE OUTER DIAMETER	CATALOG #
1.5mm	1.1 - 1.6mm	HQG1.5MB
2mm	1.6 - 2.4mm	HQG2MB
3mm	2.6 - 3.8mm	HQG3MB
MB-S-Series: Extracranial Micro-Flowprobes (short handle, single use)		
PROBE SIZE	VESSEL RANGE OUTER DIAMETER	CATALOG #
3mm	2.7 - 4.0mm	HQG3MB-S
4mm	3.0 - 5.0mm	HQG4MB-S
6mm	4.0 - 7.3mm	HQG6MB-S
MR-Series: Intracranial Charbel Micro-Flowprobes (long handle, multi-use)		
PROBE SIZE	VESSEL RANGE OUTER DIAMETER	CATALOG #
1.5mm	1.1 - 1.6mm	HQE1.5MR
2mm	1.6 - 2.4mm	HQE2MR
3mm	2.6 - 3.8mm	HQE3MR
MR-S-Series: Extracranial Micro-Flowprobes (short handle, multi-use)		
PROBE SIZE	VESSEL RANGE OUTER DIAMETER	CATALOG #
3mm	2.7 - 4.0mm	HQE3MR-S
4mm	3.0 - 5.0mm	HQE4MR-S
6mm	4.0 - 7.3mm	HQE6MR-S

Clamp-on Tubing Flowmeters

HQD_XL Tubing Sensors for Optima Flowmeters



XL-Series Clamp-on Tubing Flowsensor

Tubing Flowmeters measure the flow within flexible tubing with transit-time ultrasound technology. Used to verify flow in CP Bypass and ECMO circuits, Transonic Tubing Flowmeters can measure most non-aerated liquids including saline and buffer solutions, blood and water. No physical contact is made with the fluid media.

Sensor size is determined by outer tubing diameter (see charts at right) and can be ordered in inches or metric sizes.

Important: A sample of the tubing to be used with the Tubing Flowmeter must accompany a purchase order in order to calibrate the Flowmeter precisely.

Clinical Tubing Flowmeters will be calibrated for clinical use only: blood at 37 degrees Celsius.

HQD - XL SENSORS (INCHES)			
CATALOG # HQD / HQS Series	TUBING		
	ID INCHES	WALL THICKNESS INCHES	OD INCHES
2XL	IN SIZES 2XL-5XL RATIO OF TUBING WALL THICKNESS TO OD MUST NOT EXCEED 1.5 FOR PVC; 1:3 FOR SILICONE		1/8
3XL			3/16
4XL			1/4
5XL			5/16
6XL	1/4	1/16	3/8
7XL	1/4	3/32	7/16
8XL	3/8	1/16	1/2
9XL	3/8	3/32	9/16
10XL	1/2	1/16	5/8
11XL	1/2	3/32	11/16
12XL	1/2	1/8	3/4

HQD - XL SENSORS (METRIC)	
CATALOG # HQD / HQS Series	OD MM
2XL-M4	4 mm
3XL-M5	5 mm
4XL-M6	6 mm
4XL-M7	7 mm
5XL-M8	7 mm
6XL-M9	8 mm
7XL-M10	9 mm
8XL-M12	10 mm
9XL-M14	12 mm
10XL-M16	14 mm
12XL-M20	20 mm

STOCK TUBING			
Procedure	Cat # HQD / HQS Series	TUBING (inches) Inner Diameter Wall Thickness	Tygon Stock Tubing: If using tubing of different diameter or type, please discuss tubing with a customer service representative.
CAROTID SHUNTS	2XL	3/32 x 1/32	Tygon ND 100-65; Tygon E-3603
	3XL	1/8 x 3/32	Tygon E-3603
	4XL	1/8 x 1/16	Tygon ND 100-65; Tygon E-3603
	5XL	3/8 x 1/16	Tygon ND 100-65; Tygon E-3603
PED CPB, ECMO	6XL	1/4 x 1/16	Tygon ND 100-65; Tygon E-3603
	7XL	1/4 x 3/32	Tygon ND 100-65; Tygon E-3603
	8XL	3/8 x 1/16	Tygon ND 100-65; Tygon E-3603
ADULT CPB	HQD 9XL	3/8 x 3/32	Tygon ND 100-65; Tygon E-3603
	HQD 10XL	1/2 x 1/16	Tygon ND 100-65; Tygon E-3603
	HQD 11XL	1/2 x 3/32	Tygon ND 100-65; Tygon E-3603



Transonic Systems Inc. is a global manufacturer of innovative biomedical flow measurement equipment. Founded in 1983, Transonic sells state-of-the-art, transit-time ultrasound devices for surgical, hemodialysis, perfusion, ECMO, and medical device testing applications, and for incorporation into leading edge medical devices.

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