

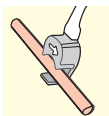
HT331 Quick Reference Guide

TRANSONIC SYSTEMS HOTLINE # 1-800-353-3569 USA

HT331 Neurosurgery Flow-QC Meter

KEY POINTS FOR THE SURGEON

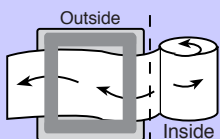
1. Select appropriate size flowprobe and apply to the vessel as shown.
2. Add saline as needed to obtain good ultrasonic contact. Do not irrigate continuously because the flowprobe will also measure the flow of the saline.
3. When the flow reading is stable (10-15 seconds) ⇒ PRINT. Leave probe on the vessel until the printer stops.



FLOW-SOUND on/off (speaker icon)
 INVERT to change (-) to (+)
 SIGNAL QUALITY INDICATOR should be ≥ 50% for good ultrasonic contact (light icon)
 MEAN FLOW DISPLAY (mL/min) (digital display icon)

TO CHANGE THERMAL PAPER

- 1) Depress bar to open
- 2) Insert new roll & thread paper under cover guard as shown.



DISPLAY MESSAGES

- NoPRB** = No Probe (probe not connected to meter)
- AcErr** = Acoustical Error (Air between vessel and probe, add saline)
- TSI✓** = identification of connected flowprobe
- HT311 ONLY** = Incompatible probe (Call 1-800-353-3569 for assistance)
- 8 of 8:** = Countdown of number of times probe is used (for 8x use probes only)

Key Points

- ✓ Use right size flowprobe.
- ✓ Check baseline flows before aneurysm clipping.
- ✓ If burst suppression is given, measure baseline flows afterwards.
- ✓ Record blood pressure and end tidal CO₂ during initial measurements and keep these parameters constant during subsequent flow measurements.

Probe Size	Vessel Ø mm
1.5	1.0 - 1.5
2.0	1.5 - 2.0
3.0	2.0 - 3.0

Expected Flow Rates

Location	Flow ml/min	Probe Size mm
ACA (A1)	40 - 60	2.0
A2	40 - 50	1.5
MCA (M1)	80 - 110	2.0
M2	50 - 80	2.0
P2	26 - 30	2.0
PICA	10 - 15	2.0
ICA	120 - 170	3.0
VA	100 - 200	3.0
SCA	18 - 20	1.5

Technical Recommendations — Aneurysm Surgery

Aneurysm Location	Probe Placement	Tips
MCA	M2 outlet vessels	This is a straightforward, relatively low stress case for the surgeon. One of the easiest places to put the probe. Ask if it's a wide neck.
Carotid Bifurcation	MCA and/or ACA	The technical challenge is to preserve flow in the M1 and A1 outlet vessels. Flow in the ICA (3 mm) can be checked also.
Carotid-Ophthalmic	MCA and/or ACA, ICA	Flow must be preserved in the the ICA and M1 and A1 outlet vessels. Usually large aneurysms with no proximal control.
Anterior Communicating	Ipsilateral A1 (and/or Contralateral) Both A2s	High risk. The technical challenge is to preserve flow in the A2 outlet vessels. No change in both A2s indicates flow is fully preserved. One A1 usually predominates and feeds both vessels.
Basilar tip	Ipsilateral P2 and SCA Pcom (prelude to sacrifice)	The perforators will still need to be inspected.
Superior cerebellar artery	Ipsilateral SCA & PCA	Check flow in the ipsilateral SCA & PCA.
Posterior Communicating	MCA and ACA, ICA	This is the one location where the probe might not be used because the surgeon may only expose the carotid and the aneurysm.
Posterior Inferior Cerebellar	Proximal or distal VA and/or PICA	Check flow in PICA and VA.
Anterior Choroidal	MCA & ACA, ICA, Ant Choroidal	Flow in the anterior choroidal is particularly important. The 1.5 mm probe is good for this vessel.