



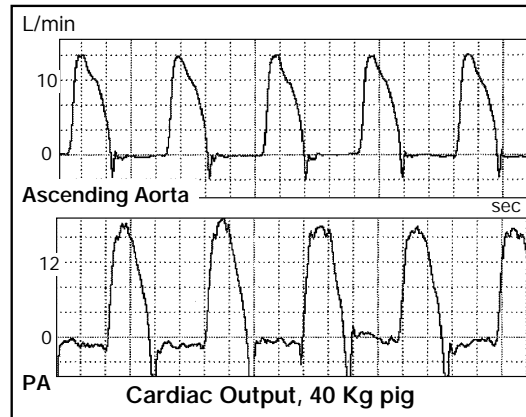
# A - Series Probes

## What our customers say about the new cardiac output probes

- Easy to apply to the great vessels of the heart
- Probes ride well on the ascending aorta and PA
- Acoustic contact with the vessel is easily maintained

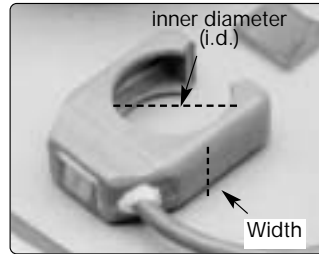
Full flow illumination is especially critical on the ascending aorta where major changes in flow profile occur during the cardiac cycle. A-Series probes have < 5% variation in flow sensitivity across the sensing window.

Dual-beam "X"-pattern illumination reduces probe positional sensitivity: in a pilot field calibration study (*Technical Note #16*), the slope of the probe calibration curve varied less <math>\pm 7\%</math>, when the probe was turned from the natural "12 o'clock" position to 3, 6, and 9 o'clock positions.



Cardiac output recordings in an anesthetized 40 Kg pig. Upper trace: 20A probe on the ascending aorta; lower trace: 16A probe on the pulmonary artery.

*Data courtesy of Dr. Henry Spotnitz, Columbia Univ., NY.*



### Specifications

CAT # Probe	VESSEL O.D. mm acute application	BIDIRECTIONAL FLOW				ACCURACY <i>(Acute Use Only)</i>			ULTRA SOUND Frequency MHz
		Resolution L/min	Scale Settings Low Flow L/min	Normal Flow L/min	Maximum Range L/min	Zero Offset L/min	Absolute Accuracy %	Relative Accuracy %	
8A	6 - 8	.004	0.5	2	10	$\pm .03$	$\pm 10$	$\pm 2$	3.6
10A	8 - 10	.004	0.5	2	10	$\pm .03$	$\pm 10$	$\pm 2$	3.6
12A	9 - 12	.008	1	4	20	$\pm .06$	$\pm 10$	$\pm 2$	2.4
14A	11 - 14	.008	1	4	20	$\pm .06$	$\pm 10$	$\pm 2$	2.4
16A	12 - 16	.020	2.5	10	50	$\pm .15$	$\pm 10$	$\pm 2$	1.8
20A	16 - 20	.020	2.5	10	50	$\pm .15$	$\pm 10$	$\pm 2$	1.8
24A	19 - 24	.040	5	20	100	$\pm .3$	$\pm 10$	$\pm 2$	1.2
28A	22 - 28	.040	5	20	100	$\pm .3$	$\pm 10$	$\pm 2$	1.2
32A	25 - 32	.080	10	40	200	$\pm .6$	$\pm 10$	$\pm 2$	0.9
36A	28 - 36	.080	10	40	200	$\pm .6$	$\pm 10$	$\pm 2$	0.9

# for Cardiac Output



## New probe design: higher accuracy, smaller profile

Transonic Systems' new A-Series probes address the challenges of acute flow measurements on the ascending aorta and pulmonary artery, sites with limited anatomical access and highly variable flow profiles.

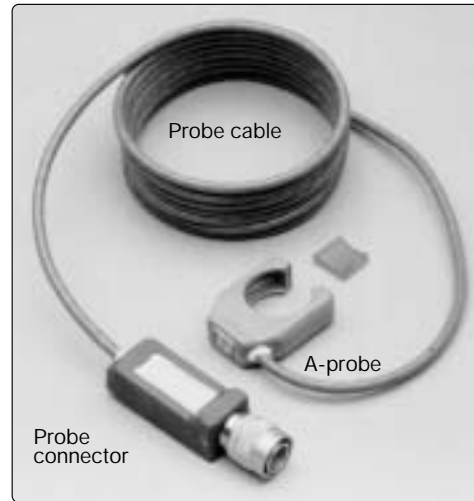
### A-Series probes combine:

- field-proven full flow illumination  
*the gold standard in animal research*
- 4-transducer "X-Beam" ultrasonic design  
*accurate even on highly turbulent flows*

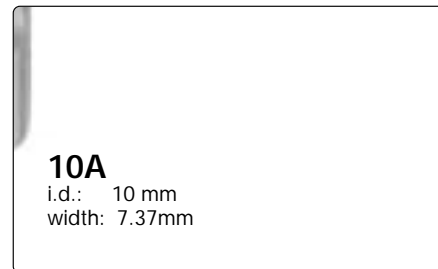
These design features result in a trim, lightweight probe with a round opening. The use of acoustic couplant is minimized, as the round opening conforms to the shape of the vessel.

A-Series probes may be customized for implantation and used for long-term studies of cardiac output. (*Application Protocol # 59*)

*Probe photos are actual size.*



Most older model T106/T206 & T108/T208 flowmeters can be upgraded for use with A-probes.  
*Call customer service with flowmeter serial number.*





## A-Series for Cardiac Output

**A -Series Probes are sized to the outer diameter of the vessel**

Sized to the outer diameter of a vessel, the A-probes circular design will fit the comparable vessel size more closely than our square-reflector S-Series probes. (Customers familiar with our S-Series probes are advised to order the next larger A-Series size.) A snap-in closure is provided to retain the vessel inside the probe.

Probe photos  
are to scale

