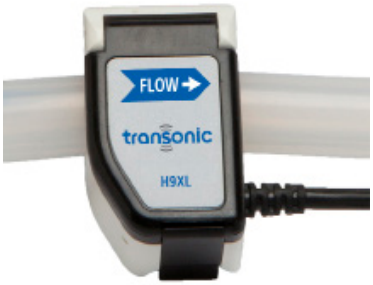
FlowXL Sensor Specifications

HS-XL Series Clamp-on Flowsensors

APPLICATIONS



- Artificial Heart & VAD Performance
- Medical Device & Pump Engineering
- Manufacturing & Compliance Flow Testing

Transit-time ultrasound technology measures volume flow in tubing with specifically designed Tubing Flowsensors. Most non-aerated liquids can be measured, including saline and buffer solutions, blood and water. No physical contact is made with the fluid media. HS-XL Series Flowsensors can be calibrated and programmed for up to four different fluid/temperature/tubing combinations and will work with most flexible tubing types (see next page). Sensor size is determined by outer tubing diameter.

SENSOR SIZE	TUBING			BIDIRECTIONAL FLOW OUTPUTS		SYSTEM ACCURACY SPECIFICATIONS		ULTRASOUND FREQUENCY
					MAX FLOW	MAX ZERO OFFSET	ABSOLUTE ACCURACY	
	ID	WALL THICKNESS	OD					
	INCHES	INCHES	INCHES	mL/MIN	5V OUTPUT IN L/MIN	mL/MIN	% OF READING	MHz
HS2XL	3/32	1/64	1/8	0.5	1	± 5.0	± 10	3.6
HS2XL-156	3/32	1/32	5/32					
HS3XL	1/8	1/32	3/16	1.0	2	± 10.0	± 10	3.6
HS3XL-219	5/32	1/32	7/32					
HS4XL	IN SIZES 2XL-5XL RATIO OF TUBING WALL THICKNESS TO OD MUST NOT EXCEED 1.5 FOR PVC; 1:3 FOR SILICONE		1/4	1.0	2	± 10.0	± 10	2.4
HS5XL			5/16	1.0	2	± 10.0	± 10	2.4
HS6XL	1/4	1/16	3/8	2.5	5	± 30	± 10	2.4
HS7XL	1/4	3/32	7/16	5	10	± 60	± 10	1.8
HS8XL	3/8	1/16	1/2	5	10	± 60	± 10	1.8
HS8XL Alt.	5/16	3/32	1/2					
HS9XL	3/8	3/32	9/16	5	10	± 60	± 10	1.8
HS10XL	1/2	1/16	5/8	10	20	± 120	± 10	1.2
HS11XL	1/2	3/32	11/16	10	20	± 120	± 10	1.2
HS12XL	1/2	1/8	3/4	10	20	± 120	± 10	1.2
HS14XL	5/8	1/8	7/8	25	50	± 300	± 10	1.2
HS14XL Alt.	11/16	3/32	7/8					
HS16XL	3/4	1/8	1	25	50	± 300	± 10	1.2

Calibration is dependent on tubing material, wall thickness, ultrasound velocity of liquid flowing through the tube & temperature.

1. Resolution represents the smallest detectable flow change at 0.1 Hz filter (average flow output).
2. Absolute accuracy is comprised of zero stability, resolution and zero-offset effects. Stated

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HS-XL Series Clamp-on Flowsensor cont.

STOCK TUBING			
Procedure	Cat #	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	HS_ 2XL	3/32 x 1/32	Tygon ND 100-65; Tygon E-3603
	HS_ 3XL	1/8 x 3/32	Tygon E-3603
	HS_ 4XL	1/8 x 1/16	Tygon ND 100-65; Tygon E-3603
	HS_ 5XL	3/8 x 1/16	Tygon ND 100-65; Tygon E-3603
PED CPB, ECMO	HS_ 6XL	1/4 x 1/16	Tygon ND 100-65; Tygon E-3603
	HS_ 7XL	1/4 x 3/32	Tygon ND 100-65; Tygon E-3603
	HS_ 8XL	3/8 x 1/16	Tygon ND 100-65; Tygon E-3603
ADULT CPB	HS_ 9XL	3/8 x 3/32	Tygon ND 100-65; Tygon E-3603
	HS_ 10XL	1/2 x 1/16	Tygon ND 100-65; Tygon E-3603
	HS_ 11XL	1/2 x 3/32	Tygon ND 100-65; Tygon E-3603

In sizes 2XL-5XL ratio of tubing wall thickness to OD must not exceed 1.5 for PVC; 1:3 for silicone

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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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