H-Transducer Series Ø64 mm with Ø20 mm Opening

The H- Transducer Series Ø64 mm is Sonic Concepts most popular model variety. Each configuration offers high-efficiency over a broad bandwidth intended for deep high-intensity focused ultrasound (HIFU) experiments. Common non-human experiments include, but are not limit to ablation, cavitation, histotripsy, boiling histotripsy and other non-medical applications. Transducers within this Ø64 mm series range from 250 kHz to 2.0 MHz over a variety of f-numbers.

Each transducer is intended for use with a 50 Ohm RF amplifier with a maximum average power level of 400 electrical Watts, assuming the transducer is operating in free-field (i.e., no reflector) conditions. The acoustic output is highly uniform over the radiating surface.

An RF impedance matching network is supplied with each transducer to resonate at the fundamental resonance. The measured efficiency and bandwidth of this transducer series includes losses in the transducer, cable and matching network, and is typically 85% (minimum) across the fundamental passband.

An optional third harmonic RF impedance matching network allows operation in the vicinity of three (3) times the fundamental resonance. The efficiency at the third harmonic is about 25% lower than at the fundamental. The matching networks include BNC connectors and forced-air cooling in an aluminum, RF shielded enclosure, approx. 13.3 x 6.8 x 4.5 cm.

Features

- High power (up to 400 Watts)
- High conversion efficiency at fundamental (Fo) and 3rd harmonic (3xFo) resonances
- Variety in focal geometry and focal gain
- Water proof housing
- Optional MRI Compatible version
- Optional multi-element structures

Transducer Characteristics

Center frequency (Fc): +/- 5% (fundamental mode); approximately 3.3 times fundamental mode (3xFo)
Bandwidth: +/-20% of Fc to -3 dB points (Fo); approximately +/-10% (3xFo)
Efficiency: 85% (min) at Fo
Active diameter: 64.0 mm O.D. x 22.6 mm I.D.

Housing Assembly

Stainless steel
RoHs compliant
Ø82.0 mm, see table for height
Central opening: Ø20.0 mm
Six mounting holes located 60° apart on bottom of housing
Side exiting 0.5 meter x 50 Ohm coaxial cable, BNC Male Plug
Waterproof up to 0.5 meter, connector not submersible

SONIC CONCEPTS

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H- Ø64 w/ Opening

Characteristics

MODEL	Height	Fo	3xFo	Radius of Curvature	I.D.	O.D.	Area	Power Electric	Power Acoustic	Pressure Focal Gain	Surface Intensity	Surface Pressure	Focal Intensity	Focal Pressure	Focal Width (Ø)	Focal Length
	mm	MHz	MHz	mm	mm	mm	cm^2	Watts	Watts		W/cm^2	kPa_pk	W/cm^2	MPa_pk	mm	mm
H-117	25.0	0.25	0.78	63.20	22.60	64.00	30.50	400	340	8.04	11.15	578.26	721	4.65	6.04	39.49
H-107	19.0	0.50	1.55	63.20	22.60	64.00	30.50	400	340	16.09	11.15	578.26	2885	9.30	3.02	21.42
H-230	25.0	0.50	1.55	45.00	22.60	64.00	33.70	400	160	24.96	4.75	377.39	2959	9.42	2.15	11.13
H-231	19.0	0.75	2.33	63.20	22.60	64.00	30.50	400	340	24.13	11.15	578.26	6491	13.95	2.01	14.70
H-102	19.0	1.10	3.41	63.20	20.00	64.00	31.39	400	340	36.42	10.83	570.07	14368	20.76	1.37	10.21
H-233	25.0	1.10	3.41	45.00	22.60	64.00	33.70	400	340	54.92	10.09	550.14	30430	30.21	0.98	5.24
H-232	19.0	1.10	3.41	100.00	22.60	64.00	29.01	400	340	21.28	11.72	592.92	5305	12.62	2.17	24.97
H-234	25.0	1.50	4.65	45.00	22.60	64.00	33.70	400	340	74.89	10.09	550.14	56586	41.20	0.72	3.87
H-148	19.0	2.00	6.20	63.20	22.60	64.00	30.50	400	340	64.35	11.15	578.26	46161	37.21	0.76	5.72

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