

## H-Transducer Series Ø150 mm w/ Ø41 Opening



The H-300-Single Transducer Series is Sonic Concepts largest aperture configuration. This series 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-human applications. Transducers within this Ø150 mm f/1.0 series range from 500 kHz to 4.0 MHz.

Each transducer is intended for use with a 50 Ohm RF amplifier with a maximum average power level of 500 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.

For more about H-300-Array, please see separate H-300-Array Series datasheet.

### Features

- High power (up to 500 Watts average)
- High conversion efficiency
- High pressure gain
- Water proof up to connector
- Optional MR Compatible version
- Optional multi-element structure (see H-300-Array Series)
- Optional thermal monitoring

### Transducer Characteristics

Center frequency (Fc): +/-5% @ Fo (fundamental mode); approximately 3.3 times Fo (3xFo)

Bandwidth: +/-20% of Fc to -3 dB points (Fo); approximately +/-10% (3xFo)

Efficiency: 80% (min) at Fo

Active diameter: 150.0 mm O.D x 44.0 mm I.D.

Radius of Curvature: 150.0 mm

### Housing Assembly

Stainless steel

RoHs compliant

Ø162 mm x 60 mm height

Central opening: Ø41.0 mm diameter

Eight mounting holes located 45° apart on bottom of housing

Side exiting 1.0 meter x 50 Ohm coaxial cable, BNC Male plug

Waterproof up to connector

Characteristics

MODEL	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
	MHz	MHz	mm	mm	mm	cm <sup>2</sup>	Watts	Watts		W/cm <sup>2</sup>	kPa_pk	W/cm <sup>2</sup>	MPa_pk	mm	mm
H-314	0.50	1.55	150.00	44.00	150.00	174.11	500	425	38.69	2.44	270.61	3654	10.47	3.06	23.08
H-301	1.10	3.41	150.00	44.00	150.00	174.11	500	425	85.12	2.44	270.61	17687	23.03	1.39	10.71
H-302	2.00	6.20	150.00	44.00	150.00	174.11	500	425	154.77	2.44	270.61	58468	41.88	0.77	5.94
H-313	4.00	12.40	150.00	44.00	150.00	174.11	500	425	309.54	2.44	270.61	233872	83.76	0.38	2.99