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 limited 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, BNCF 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 |
|-------|----|------|---------------------|------|------|------|----------------|-----------------|--------------------|------------------|-----------------|----------------|----------------|----------------|----------------|--------------|
| 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 |