

SU-Transducer Series Ø33 mm

Sonic Concepts offers its SU- Transducer Series Ø33 mm variety for hand-held non-human thermal ablation or cavitation applications. All models within the SU-series offer high-efficiency over a broad bandwidth with the intention of creating high intensity (Isppa & Ispta) lesions in-vivo. It's handle facilitates users to manually steer the focus across the intended treatment zone or alternatively mount to a robotic arm. Transducers within this Ø33 mm series range from 500 kHz to 5.0 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 150 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 integral to each transducers handle 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. Additionally, MR compatibility, thermal monitoring, water cooling and water coupling features are available upon request.

Features

- High power (up to 150 Watts average)
- High conversion efficiency
- Variety in focal geometry and focal gain
- Waterproof up to connector
- Optional MRI Compatible version
- Optional multi-element structure
- Optional thermal monitoring and water cooling

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: 33.0 mm

Housing Assembly

Brass front housing 12.7 mm height x 39.4 mm diameter

Plastic rear handle 12.7 mm height x 88.0 mm from brass housing OD and perpendicular to the transducers axis

Total 25.4 mm height x 127.4 mm length

Cable exits from proximal end of handle, 1.0 meter 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 ²	Watts	Watts		W/cm ²	kPa_pk	W/cm ²	MPa_pk	mm	mm
SU-136	0.50	1.55	63.20	0.00	33.00	8.70	150	128	4.59	14.65	662.92	309	3.04	5.86	65.29
SU-142	1.10	3.41	35.00	0.00	33.00	9.09	150	128	19.05	14.03	648.70	5088	12.35	1.48	11.28
SU-137	1.10	3.41	63.20	0.00	33.00	8.70	150	128	10.10	14.65	662.92	1494	6.70	2.66	34.54
SU-101	2.00	6.20	55.00	0.00	33.00	8.75	150	128	21.22	14.56	660.99	6560	14.03	1.28	15.49
SU-102	3.50	10.85	55.00	0.00	33.00	8.75	150	128	37.14	14.56	660.99	20090	24.55	0.73	9.13
SU-107	3.50	10.85	35.00	0.00	33.00	9.09	150	128	60.60	14.03	648.70	51508	39.31	0.46	3.75
SU-108	5.00	15.50	35.00	0.00	33.00	9.09	150	128	86.57	14.03	648.70	105119	56.16	0.32	2.65