MTEKSONIC™
ULTRASONIC INNOVATIONS

TUBE RESONATOR FOR ULTRASONIC CLEANING SYSTEMS

WE ARE COMMITED TO DELIVERING INNOVATION, EFFICIANCY AND SUSTAINABILITY

www.mteksonic.com

BENEFITS OF RESONATOR / TRANSDUCER IN ULTRASONIC CLEANING SYSTEMS

Efficiency and Coverage

360 degree sound field with exceptional cleaning efficiency & suitable for large tank volume.

Space – Saving design

Compact design for easy installation in various tank configurations

Temperature Resistance

Operation at temperature up to 90 degree centigrade

Long Lifespan

Reduced machine fabrication cost and minimizes maintenance

Flexibility and Adaptability

Resonators can be mounted in any direction, easily retrofitting existing systems.

Efficiency and Sustainability

Reduce cleaning time & energy consumptions.

Advantages Resonator Technology

Traditional transducer technology like directly tank bonded & Immersible box type transducer can be damage the tank after long use , come with limitations , high energy consumptions and inflexibility.

GENERATOR FOR RESONATOR TECHNOLOGY

MOSFET BASE MICRO-CONTROLLER GENERATOR

IGBT BASE MICRO-CONTROLLER GENERATOR

TECHNICAL DETAILS OF RESONATOR

FREQUENCY	20 KHZ , 28 KHZ , 34 KHZ, 40 KHZ
RESONATOR CONSTRUCTION	S.S 316 L OR TITANIUM MATERIAL
POWER EFFICIENCY	1000 WATTS TO 4000 WATTS (Joule /second)
VARIABLE POWER	AMPLITUTE SETTING MINIUM 50% TO 100% ADJUSTABLE
ULTRASONIC GENERATOR	MICROCONTROLLER IGBT OR MOSFET BASE
COMPLIANCE STATUS	ISO 9001:2015
COMPLIANCE STATUS	CE : MACHINERY DIRECTIVE (MD) 2006/42/EC

OSCILLATING TUBE DIMENTIONS CUSTOMIZED AS PER CUSTOMER REQUIRMENTS

POWER	DIMENTION OF OSCILLATING TUBE
1000 WATTS (JOULE /SEC.)	60 MM DIA. X 500 MM (L)
1500 WATTS (JOULE /SEC.)	60 MM DIA. X 700 MM (L)
2000 WATTS (JOULE /SEC.)	60 MM DIA. X 700 MM (L)
3000 WATTS (JOULE /SEC.)	60 MM DIA. X 1200 MM (L)
4000 WATTS (JOULE /SEC.)	60 MM DIA. X 1200 MM (L)

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Enhanced cleaning and processing

Uniform 360° cavitation:

Unlike flat transducers that project waves in one direction, a tube resonator radiates ultrasonic waves in all directions.

Effective for complex parts:

It is highly effective at reaching complex geometries, such as intricate components, blind holes, and the interior surfaces of other tubes and pipes.

Processes in **Accelerated processes:**

The uniform energy distribution and strong cavitation can accelerate chemical and physical Sonochemistry, including emulsification, mixing, and crystallization.

Versatility and ease of integration

Ideal for retrofitting:

Tube resonators can be easily submerged and retrofitted into existing tanks, kettles, and vessels of varying shapes and sizes.

Space-saving design:

The cylindrical, compact form factor is space-efficient, allowing for installation in tanks with constricted spaces where larger, flat transducer boxes are impractical.

Modular and scalable:

Multiple tube resonators can be easily installed and positioned in a large tank to scale up power and ensure consistent energy distribution for high-volume applications.

Durability and reliability

Robust and low-maintenance:

Constructed from durable materials like stainless steel (e.g., SS 316L), tube resonators are corrosion-resistant and have a longer operational lifespan than some traditional transducer models. The design is sealed and robust, requiring less maintenance.

Resistant to harsh environments:

The heavy-duty design allows tube resonators to function reliably in demanding industrial conditions, including high-pressure and vacuum environments.

Continuous operation:

Various models offer air- or water-cooled options, making them suitable for continuous, heavy-duty operation in industrial settings.

Industrial Applications

Automotive

Electroplating, engine parts, surface treatment

Aviation

Engine components, precision parts, surface treatment

Engineering Manufacturing

Metal processing, mold maintenance, tool cleaning

Printing

Printing head / roller cleaning

Defence

Weapon Cleaning, etc.

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CE

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