

PROGRAMMABLE ULTRASONIC CLEANER

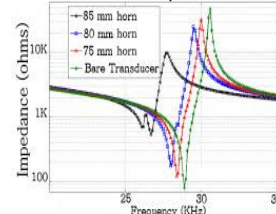
Feed back controlled

Introduction & Operating principle

MUTCL series of temperature controlled ultrasound sonicator generates ultrasonic waves in the fluid by changing size in concert with an electrical signal oscillating at ultrasonic frequency. This creates compression waves in the liquid of the tank which 'tear' the liquid apart, leaving behind many millions of microscopic 'voids' or 'partial vacuum bubbles' (cavitation). These bubbles collapse with enormous energy; temperatures and pressures on the order of 5,000 K and 20,000 lbs per square inch are achieved; however, they are so small that they do no more than clean and remove surface dirt and contaminants. The higher the frequency, the smaller the nodes between the cavitation points, which allows for cleaning/intensify reaction. Multipoint sensing ensures uniform cavitation in bath to ensure homogenization. These finds application in cell disruption, emulsification, and homogenizing of biological matter Pharmaceutical, infection control, Cosmetics & Synthetics, genetic engineering, Petrochemical, Paper and Environments application, pipe line cleaning, Metal Finishing and Corrosion Control ,petrochemical , Polymer manufacturing , Medicines, biotechnology, medicine , Process control and Chemical Engineering ,Semiconductors/ Ceramics application . Cavitation formation dynamics is as under....

Benefits:

- Compact and energy efficient.
- Automatic frequency tuning and power control.
- Synchronize power to temperature control.
- Wide voltage range.



MUTCL-020020



MUTCL-030020



MUTCL-030020

Electrical and mechanical specifications of Ultrasonic cleaner

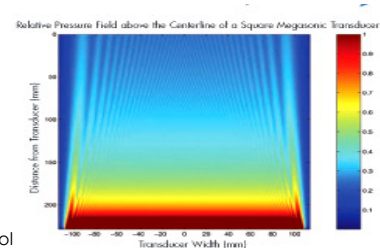
200.0 < Pr < 50000 watts

Model:	MUTCL-03020	MUTCL-01020	MUTCL-03020	MUTCL-010020	MUTCL-20020
Capacity/size (liter/ inches)	3.0/(option) 8x4x6"	10.0/(option) 8x5x10"	30.0/(option) 18x14x18"	100.0/(option) 36x16x16"	200.0/(option) 36x24x24"
Operating volt/power(volt/watts)	220/100	220/500	220/750	220/2000	220/2000
Temperature control range °C	-50 to + 200	50 to + 200	-50 to + 200	-50 to + 200	-50 to + 200
Ultrasonic wattage-watts	40	100	250	750	1500
Response time-mili sec	10	16	23	50	50
% overshoot	Critically damp	Critically damp	Critically damp	Critically damp	Critically damp
Settling time-mili second	60	80	90	110	110
Control scheme	Feedforward/ cascade	Feedforward/ cascade	Feedforward/ cascade	Feedforward/ cascade	Feedforward/ cascade
Temperature sensor type	thermopile	thermopile	thermopile	thermopile	thermopile
Temperature control range° C	-100 to 200	100 to 200	-100 to 200	-100 to 200	-100 to 200

Electrical and mechanical specifications of Ultrasonic cleaner

- Operating power supply : 220 volts/50HZ or 110 volts D.C.
- Power: as in data sheet
- Temperature control range : -100 to 200° C.
- Display accuracy : temperature/flow rate
- Permissible humidity : 90%
- Permissible ambient temperature : 60°C
- Protection : overload/short circuit.
- Power efficiency : 95%
- Cooling : air cooled

Control : feed back/feed forward power control with temperature profile control as preset / with 0-12 volts D.C. signal output. Automatic temperature control according to preset profile of temperature w.r.t. time with high degree of repeatability and accuracy. Digital display for temperature, stirring speed (optional). Facility to interface with PC.



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