

High-power Magnetostrictive Ultrasonic Generator

Model 201M

KUBOTA



INSONATOR Model 201M

A powerful generator of ultrasonic waves using a magnetos

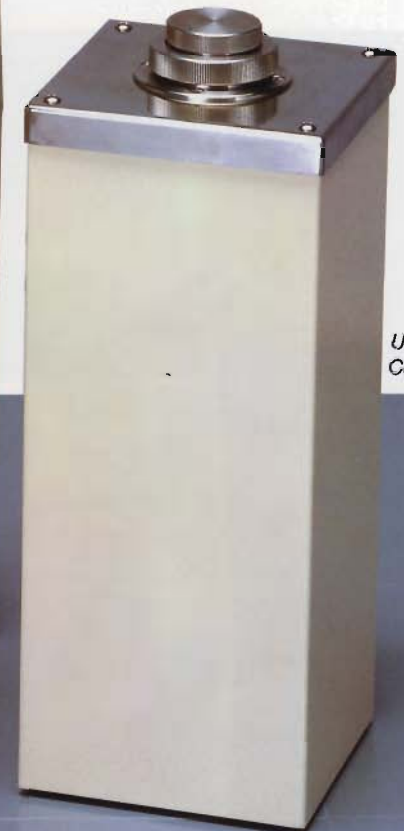
Because the specimen is broken down in a hermetically sealed vessel, no aerosol is sprayed out from the unit. The 201M is ideal for extracting DNA from E-coli, etc. in gene recombination.

The effectiveness of the unit is determined by the power of its ultrasonic waves. The 201M uses a cylindrical ultrasonic vibrator which consists of laminated thin nickel plates. With this construction, the supersonic waves are several times more powerful than those generated using PZT (barium titanate) and ferrite oscillators. To make the ultrasonic waves even more effective, the oscillating plate of the vessel, from which the waves enter the specimen, is a resonator.

The 201M uses the low frequency of 9,000 Hz. Supersonic waves generate heat in the specimen. The heat generated is proportional to the square root of the frequency. Therefore, the lower the frequency, the less heat is generated. Various tests have proved that the heat generated by the 201M will not cause damage or harm the organisms in the specimen. The 201M is ideal for a wide range of applications including the breaking down of bacteria, microorganisms and cells, the manufacture of vaccines and the extraction of superficial antigens.



Ultrasonic Generator



Ultrasonic treatment Console

ive oscillator

■ None of the aerosol can escape

Because the treatment vessel is made from SUS304 and SUS316 stainless steel which can be sterilized with steam, and because it is a fully-enclosed structure, the aerosol cannot escape outside from the vessel. When the multi-purpose Utility Cap is used to seal the vessel, injection and removal of the specimen can be done without compromising sterility.

■ Gas injection possible

With the Utility Cap, the gases required in particular applications can be injected into the vessel. By injecting an inert gas, the oxidation of biological specimens, etc. can be prevented.

■ Temperature control

Especially when extracting enzymes and superficial antigens, bioactivation must not be allowed to deteriorate through the generation of heat. The 201M uses a forced water cooling system not only for the vessel but also for the ultrasonic vibrator. With this system, the temperature of the specimen never varies so that the effectiveness of the ultrasonic treatment can be kept at a high level. Any required temperature can be maintained; as well as using water with any specified temperature, a fluid with a temperature of less than 0°C can be used by mixing water with ethanol and other antifreeze agents.



10-100 ml Standard treatment vessel

Continuous treatment utility cap

3-10 ml Micro treatment vessel

SPECIFICATIONS

Output	0—200 W
Values	0—200 W (continuously variable)
Frequency	9,000 Hz (with sync. adjustment)
Standard Treatment Vessel	For treatment of 10—100 ml specimen
Micro Treatment Vessel	Adaptors provided for treatment of specimens less than 3 ml and 3—10 ml
Cooling System	Water cooling (water/ethanol, etc. mixtures can be used)
Timer	0 to 30 minutes, with HOLD and electric timer
Electrical Rating	AC100 V/110 V/115 V/120 V—6.5A, 50/60 Hz AC200 V/220 V/230 V/240 V—3.5A, 50/60 Hz
Dimensions	Ultrasonic Generator 24(W) × 45(D) × 44(H) cm Ultrasonic Treatment Console 16(W) × 16(D) × 40(H) cm Soundproof box 26(W) × 28(D) × 48(H) cm
Net Weight	Ultrasonic Generator 32 kg Ultrasonic Treatment Console 7 kg (including oscillator and treatment vessel) Soundproof box 6 kg

All specifications and outside appearance subject to change without notice.

Continuous treatment

A continuous treatment system is optionally available which allows a large amount of the specimen to be treated automatically in a sterilized condition.

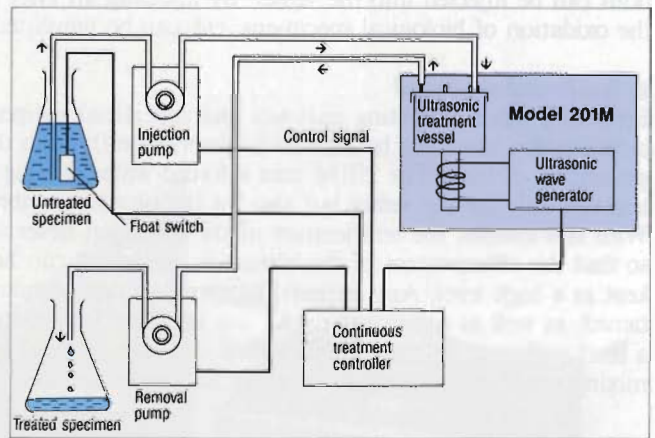
Systems configuration

The system can be constructed as shown.

All operations are performed automatically under the control of the continuous treatment controller.

The treatment cycle is:

- (1) Injection (the specimen to be treated is injected into the vessel.)
 - (2) Treatment
 - (3) Removal (the treated specimen is removed from the vessel.)
- This cycle is repeated. When there is no untreated specimen left, it is detected automatically; after the final batch is removed from the vessel, an alarm sounds and the system stops.



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Printed in Japan 5/88