

# MODEL MMW-05 (5kW)

## MUROMACHI MICROWAVE FIXATION SYSTEM

*New !*



Prior to analyses of

● Acetylcholine ● Choline ● Cyclic AMP ● Cyclic GMP ● GABA ● DOPA

● 5-HTP ● Serotonin ● Endorphin

● Catecholamines and their metabolites ● Prostaglandin

● *Phosphorylated Proteins*

**MUROMACHI KIKAI CO., LTD.**

## INTRODUCTION

In neurochemical studies of the brain, it is of great importance to accurately measure neurochemical events *in vivo*. However, it is difficult to perform reproducible and meaningful measurement of these events because rapid post-mortem changes occur in the brain concentrations of several metabolites and some neurotransmitters.

Therefore, various techniques have been developed to prevent post-mortem changes. One of the more common method is cooling or freezing by immersion of the living animal and the decapitated head in liquid Nitrogen or cooled Freon to inactivate enzymes involved in the metabolism of these compounds. Although cooling is frequently used in many laboratories, it is not fully effective in preventing post-mortem changes. The time required to freeze deep structure of the brain may range from 10 - 90 seconds due to the poor thermal conductivity of tissues surrounding the brain; post-mortem changes will occur during this period.

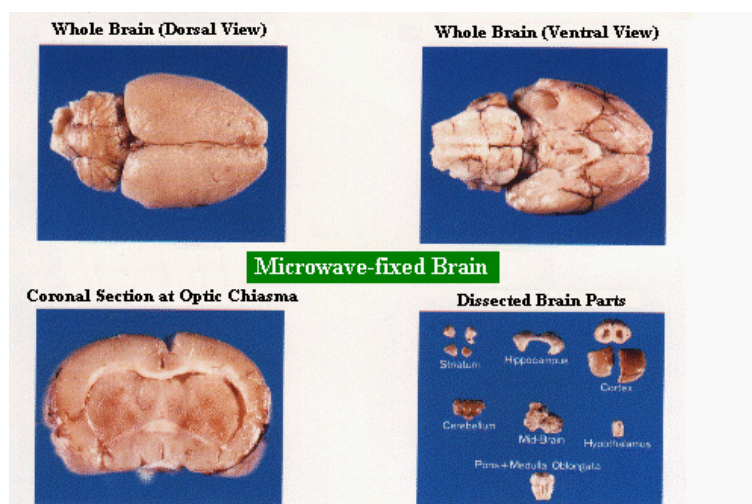
An alternate method is microwave heating to inactivate enzymes. The method has several advantages over cooling or freezing:

If microwave power of sufficient level is focused on the animal's head, the enzymes in the whole brain can be completely inactivated in a very short time. Further, the brain can be dissected easily and reproducibly at room temperature.

Therefore, microwave irradiation system is quite useful when measuring Acetylcholine, Choline, Cyclic AMP, Cyclic GMP, GABA, DOPA, 5-HTP, Serotonin, Endorphin, Prostaglandin, Catecholamines and their metabolites and Phosphorylated Proteins in the brain.

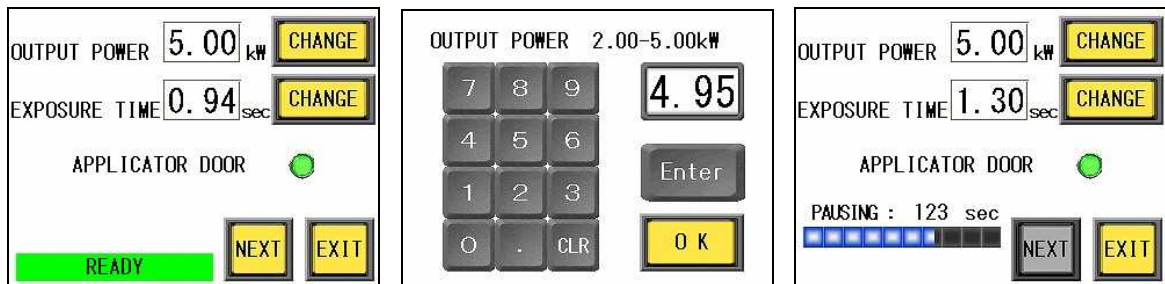
### Microwave fixation system must be such as to satisfy the following criteria:

1. Can elevate the temperature of brain up to 75-90°C as rapidly as possible.
2. Can effectively focus microwave energy only on the head of an animal.
3. Will give the same results from animal to animal.
4. The apparatus should be easily and safely used since personnel not experienced in microwave technology will use it.
5. The apparatus should be safely designed so that the microwave leakage will not exceed 5mW/cm<sup>2</sup> which is the Japanese safety standard for home microwave ovens.

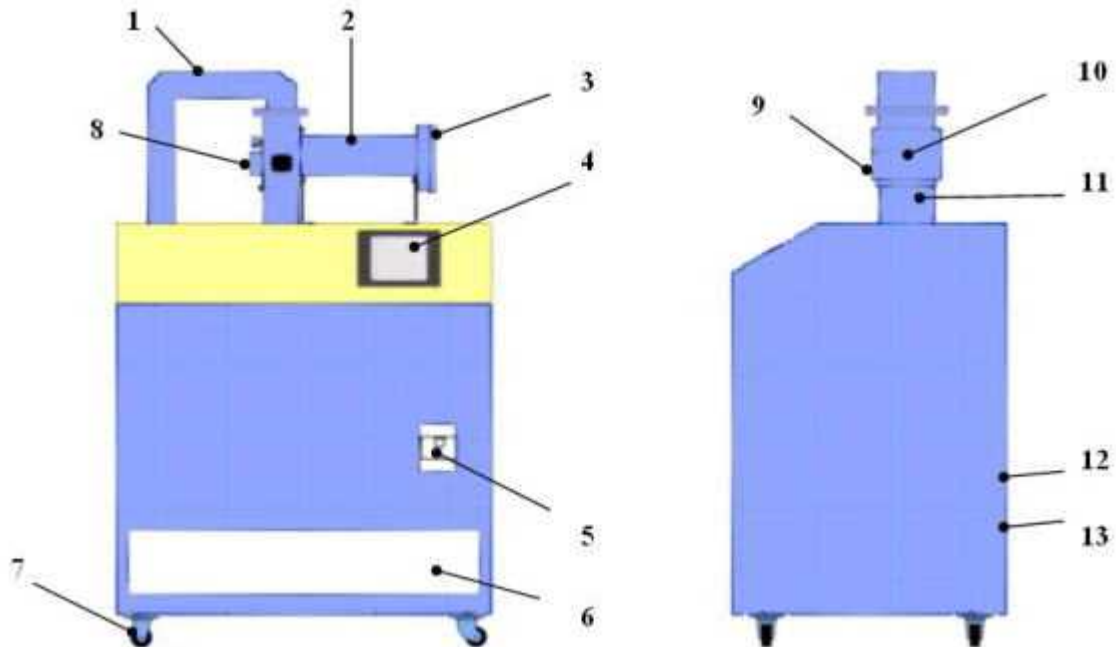


## New Features

1. All control of the instrument is through the Touch Panel Display located on the front panel.
2. Exposure conditions can be set digitally.  
Example: Mouse of 28g: 5kW 0.94sec    Rat of 300g: 5kW 1.40sec
3. Switching power supply has been employed in order to comply with line voltage fluctuation problem. Transformer is no longer required.  
*When ordering, please specify either 3-Phase 190-240V 30amp or 380-440V 20amp.*
4. As an eco-friendly air-cooling method is employed, water is no longer required.
5. Very compact and lightweight. The instrument net weight is only 103kg, less than half of the conventional model.
6. CE certified MMW-05 is safely designed so that the microwave leakage will not exceed 1mW/cm<sup>2</sup>.



## OUTLINE DRAWING

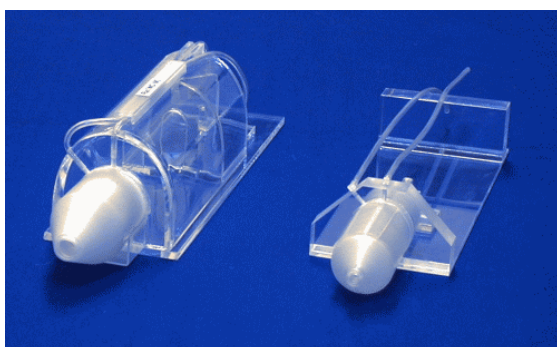


- |              |                           |                          |                          |                                  |
|--------------|---------------------------|--------------------------|--------------------------|----------------------------------|
| 1. Waveguide | 2. Applicator Head        | 3. Applicator Door Latch | 4. Touch Panel Display   | 5. Main Switch (circuit breaker) |
|              | 6. Air Inlet              | 7. Caster Wheel          | 8. Applicator Cap        |                                  |
|              | 9. Applicator Door Switch | 10. Applicator Door      | 11. Applicator Head Rest |                                  |
|              | 12. Air Outlet            | 13. Power Line Inlet     |                          |                                  |

SPECIFICATIONS	
Oscillator	Panasonic Magnetron 2M265-M11
Microwave Power Output	5kW max.( 2-5 kW variable)
Oscillation Frequency	2,450±30MHz
Cooling Requirements	Air Cooling
Exposure Time	0.10-2.99sec (0.01sec steps)
Pausing Time	3 min
Power Consumption	8kVA
Frequency	50 or 60 Hz
Power Requirements	190-240V 30A 3Phase or 380-440V 20A 3Phase
Outside Dimensions & Weight	750W x 550D x 1,275 mmH 103kg

APPLICATOR HEAD	SUITABLE ANIMAL HOLDER
TAW-174P	WJM-24 for 15-20g Mouse WJM-28 for 20-40g Mouse
TAW-424SP	WJR-S for 150-250g Rat
TAW-424MP	WJR-M for 250-400g Rat WJR-L for 400-500g Rat

Water-Jacketed Animal Holders  
Left:Rat Holder Right:Mouse Holder



THE STANDARD SYSTEM COMES SUPPLIED WITH:	
Applicator Head (Any one)	1
Animal Holder (Any one)	1
Dust Cover	1

Specifications are subject to change without notice.

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