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# Sample Preparation and Accelerating Chemistry Research with Microwave Technology

Preparation by International Bussiness Department

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## OVERVIEW

History/ Introduction

## PRODUCTS

Microwave Digestion/  
Extraction/Synthesis System

## ADVANTAGE

What We Have?/ Benefits

# 30-year Experience in R&D of Microwave Instruments

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## Records in the World

- No vessels explosion record in the world (10,000+ units installation)
- One round digestion up to 100 vessels, highest throughput in the world.
- Free lifetime for core component - Magnetron.
- Highest microwave output power in the world - 2200W
- Unique pressure monitor method - Piezoelectric Crystal.



#2

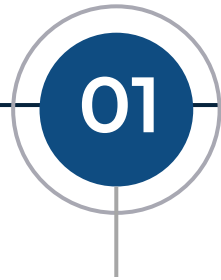
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**PRODUCTS**



# Microwave Digestion/ Extraction Units

MASTER



TANK



MDS-15



JUPITER



MDS-6G



# Microwave Synthesis/ Reaction Units

MAS-II PLUS

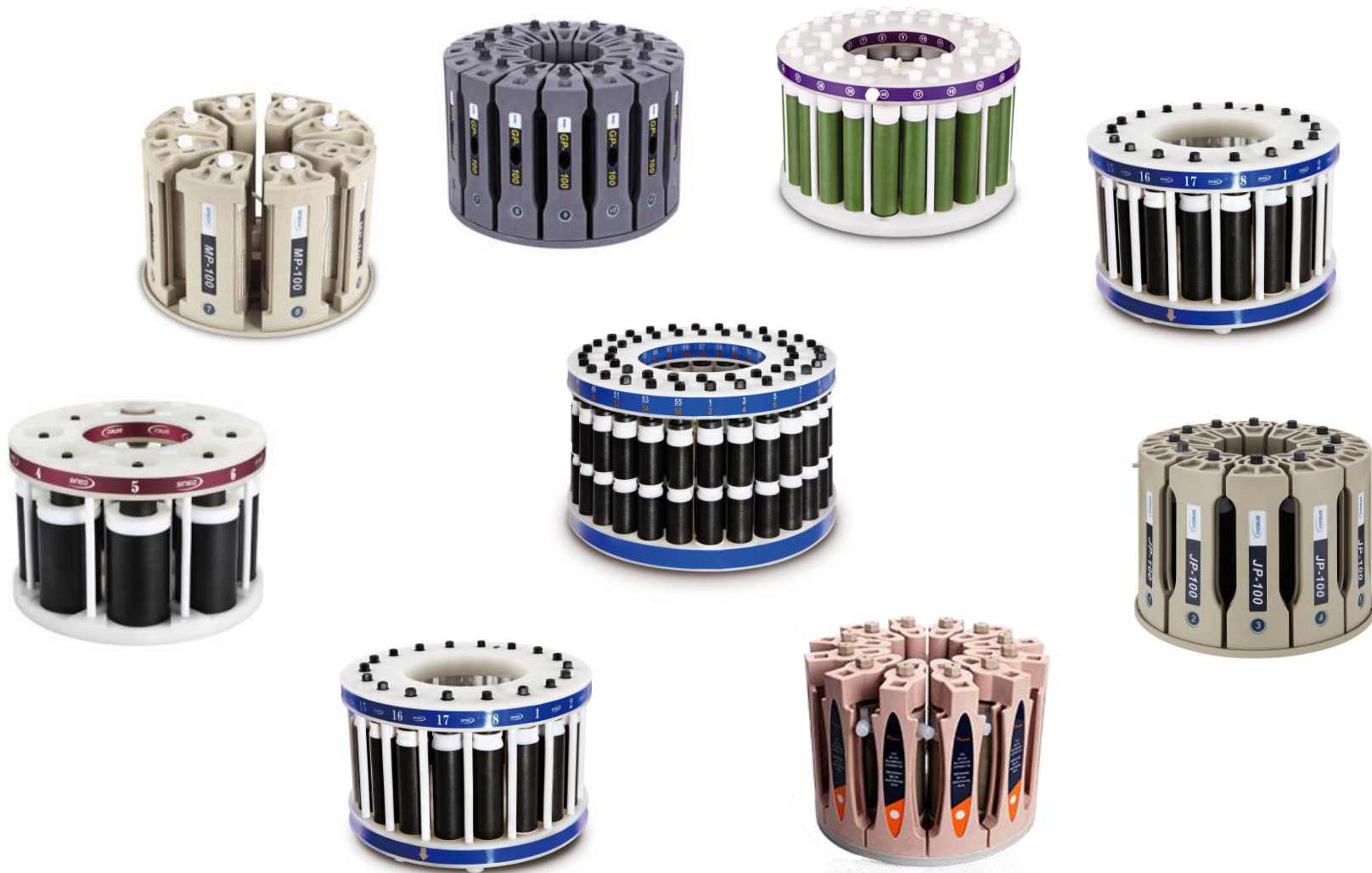


UWAVE-2000



# Full-range Vessels

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# MASTER

## Ultra High Throughput Closed Vessel Microwave System






Ultra High throughput Microwave Digestion/ Extraction, One round digestion up to 100 vessels, highest throughput in the world.

Full range vessel option for different application.





## Vessel Option

	HP-100	HP-40	XXP-100	LV-200	GP-100
Processing Capacity per Batch	100	40	18	14	16
Max. Pressure	10Mpa	10Mpa	15Mpa	18Mpa	16Mpa
Vessel Volume	15mL, 30mL, 50mL	45mL, 70mL	100mL	200mL	100mL
Max. Sample Amount	0.1-0.5g	0.1-0.5g	0.5-1.0g	1.0-2.0g	0.5-1.0g
Photo					

## Vessel Feature

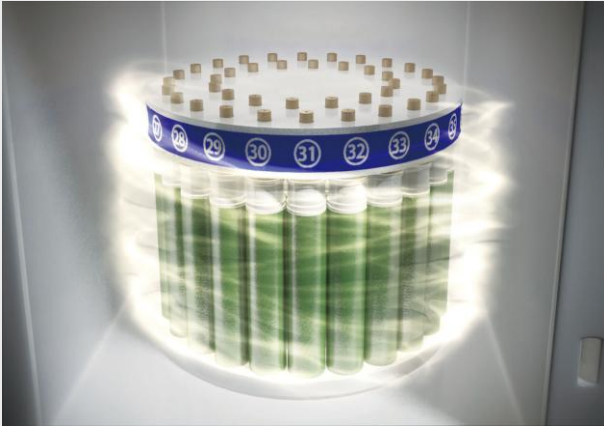


One round digestion up to 100 vessels,  
highest throughput in the world.



High-strength alloy carousel:  
higher pressure and better  
digestion performance for high  
throughput vessel, leaked under  
the pressure of  $\leq 4\text{MPa}$  and  
temperature of  $\leq 250^{\circ}\text{C}$ .

## Vessel Feature



UTH-Caro design makes the carousel stir the microwave, guarantee samples digested evenly.



Liftable Loading Trolley



Electric Wrench  
(for closing and opening safety bolt)

Note: MDS-15 has nearly same features with MASTER.

# TANK PLUS

## Microwave Digestion Workstation

- Dual-screen display
- 7-inch touch screen
- 4-core 1G operating memory (RAM)
- 5-inch display, multi-angle observation of internal operation
- 8G external storage (ROM) Information storage reaches 10 million levels



# Technical Characteristics

01

TANK PLUS is equipped with Android System, realizing higher convenience for Video SOP, Application Method Management and Parameter Calibration.

02

Wi-Fi connection and Cloud Services, remote control and sharing of data, method, message and various information.

03

Security and reliability of data are ensured by electronic signature, audit track and access control functions that meet FDA's relevant requirements.

04

High accuracy and reliability are realized by direct temperature and pressure monitoring technology.

05

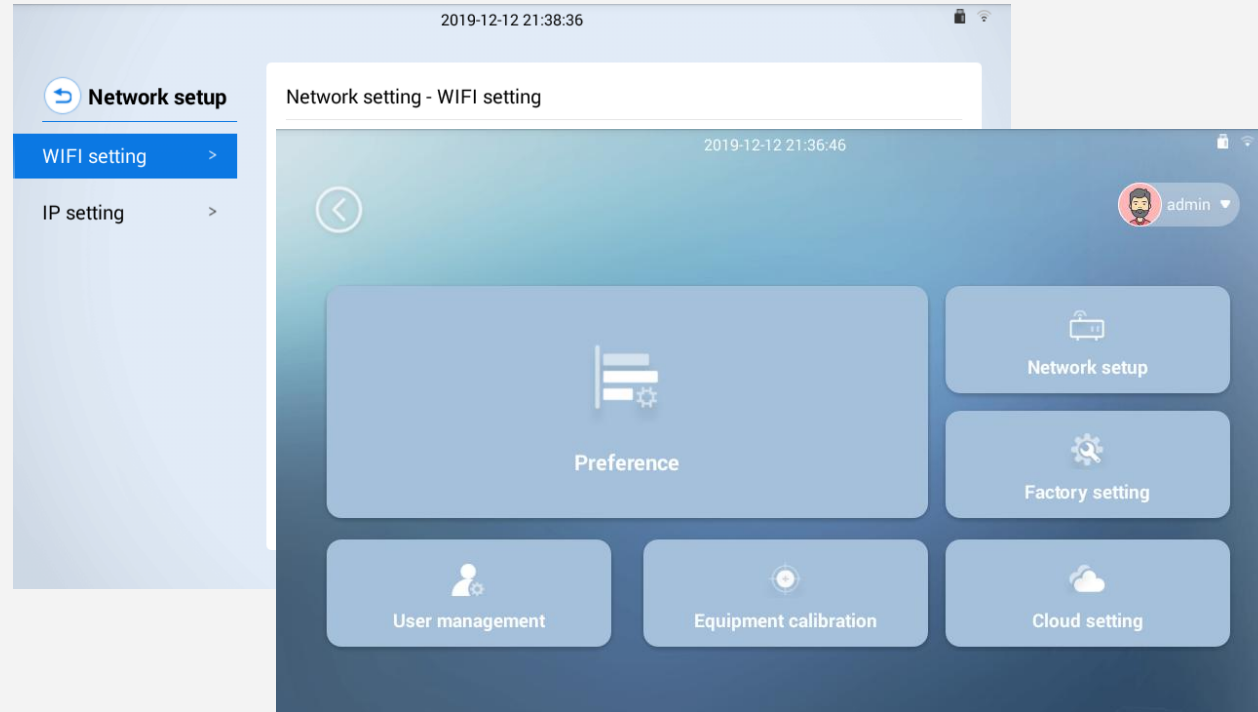
**Experiment safety is ensured as the main control vessel has temperature control function, also equipped with standard IR underneath for the all vessels, realizing real-time monitoring of temperature anomalies in individual vessels.**



## Features



The brand-new PC software supports Wi-Fi connection for remote control. The entire digestion process can be easily controlled in office.



The software has a built-in extraction method library, which can expand the normal pressure / pressure microwave extraction function and provide pretreatment tools for the detection of organic pollutants.

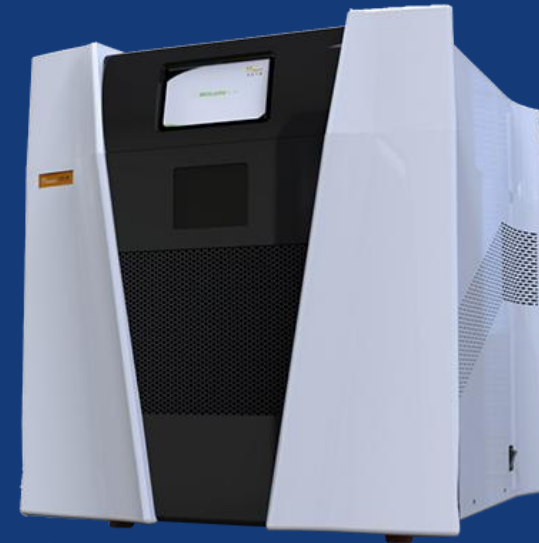


Automatic identification of turntable model and number of vessels: TANK PLUS is compatible with 12 / 40-position turntables. It can automatically recognize and automatically count the number of digestion vessels to adjust the heating power, avoid the tedious manual counting and output to guarantee the experiment more convenient and smooth.

# TANK PRO/BASIC

## Microwave Digestion Workstation

- Modern Design, User-Friendly
- Operation remote controlling
- Fiber optic temperature sensor
- Chamber inbuilt camera

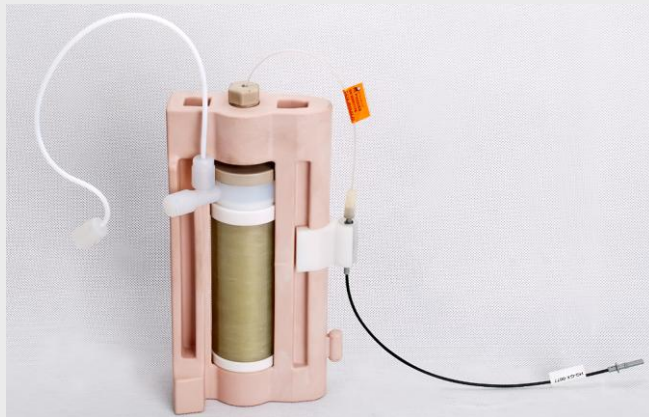


## Main Features



### Extreme Robust Vessel

- ◇ Vessel sleeve: Xtra Fiber, up to 80Mpa
- ◇ Vessel cap: PFA, shape memory material
- ◇ Vessel screw: PEEK, much safer



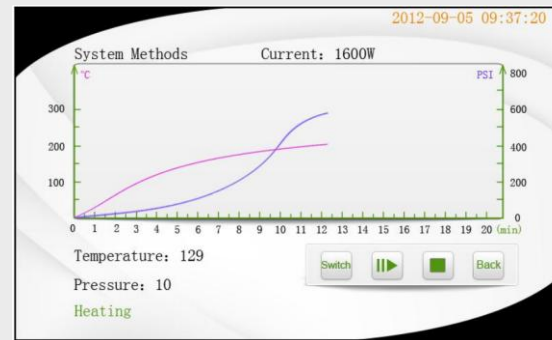
### Temperature and Pressure Monitoring System

- ◇ Optical Fiber Sensor
- ◇ Multicore, 5 times longer than others
- ◇ Airpipe for Pressure monitor

# Main Features



Wi-Fi remote control, far away from the Microwave main unit.



Temperature and pressure showed at real time



12-position Rotor

# MDS-6G

## Closed Microwave Digestion/Extraction System

- Economic model
- Basic function
- 8-position rotor, standard with 6 vessels





# VESSELS - High throughput vessels

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**Up to 100 Vessels;  
Capacity 15ml, 30ml, 50ml**

Geological samples and biological samples.



HP-100

**Up to 40 Vessels;  
Capacity 45ml, 70ml**

Geological samples and biological samples.



HP-40

# VESSELS - High pressure vessels



TK-100	MP-100	JP-100	XXP-100	GP-100
12 vessels	8 vessels	10/12 vessels	18 vessels	16 vessels
15Mpa	15Mpa	15Mpa	18Mpa	16Mpa
100mL	100mL	100mL	100mL	100mL

Food and drug (milk and dairy products, health food), cosmetics, agricultural and sideline products, aquatic products, biological tissues, various types of feed, energy and petrochemical, geology and mineral resources, environmental resources (air, water, soil), metals, alloys, ceramics, RoHS, medicine, domestic wastes.

# UWAVE- 2000

## Multifunctional Microwave Chemistry platform

Integrated with open and pressurized reaction

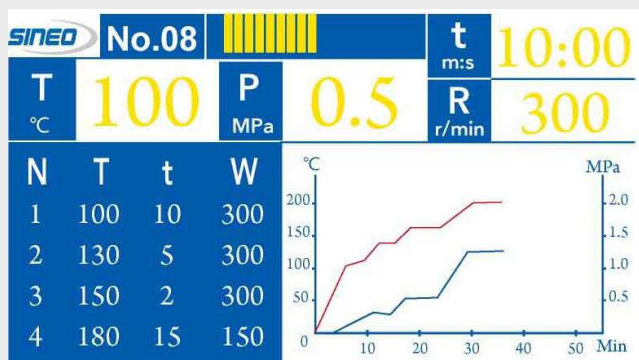
Microwave/ Ultraviolet/ Ultrasonic wave 3 IN 1

7"LCD touch screen, intelligent software, safe and remote control

Maximum reaction volume of 2000ml open vessel and 500ml closed vessel



## Main Features



◇ Color display showing reaction parameter and curve in real-time

◇ Video system to monitor the reaction visually

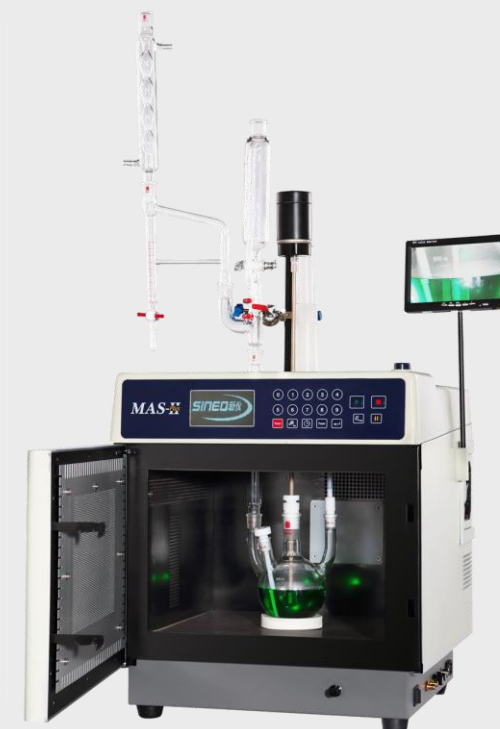


◇ Color display showing reaction parameter and curve in real-time

# MAS-II PLUS

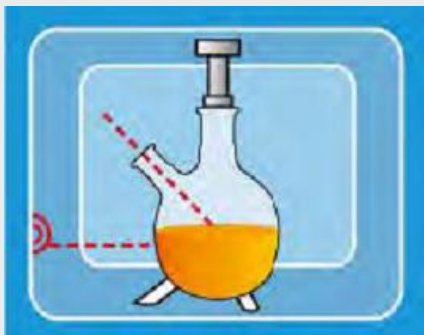
## Multi-Purpose Microwave Synthesis Extractor

- ☆ Intake of inert protective gas
- ☆ Non-pulse continuous microwave heating
- ☆ Two pages parameter and accelerating curve display
- ☆ Two channels temperature monitoring (for different medium)
- ☆ Mechanical and magnetic stirring (speed adjustable and visible)

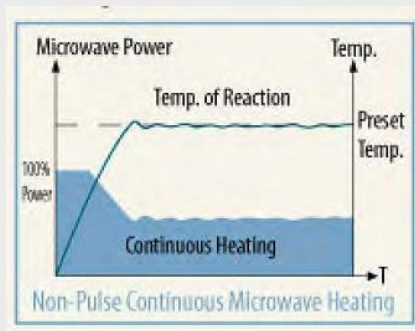




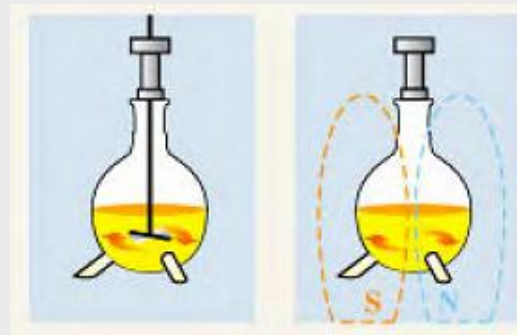
## Main Features



Patented technology to monitor inside temperature via IR sensor.



Non-pulse continuous microwave power through Inverter technology



Both mechanical and magnetic stirring



Two pages instant display of both reaction parameters and accelerating curve



**#03**

**ADVANTAGE**

# What We Have?

**01**

## **18000m<sup>2</sup> Modern Manufacturing Workshop**

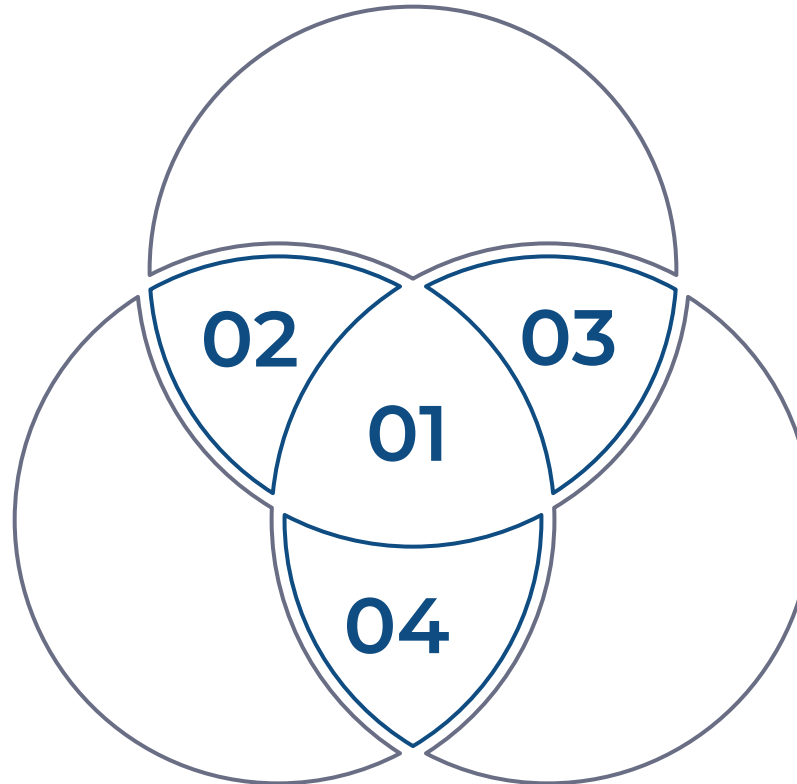
Production Capacity/Quality  
Controlling/Delivery Time

**02**

## **Technology Strength**

Microwave heating-high efficiency  
and precise control

Vessel Materials



**03**

## **Full-range Series**

Different Temperature/Pressure  
Control Methods

Different Configuration Options

**04**

## **Service & Support**

Exhibition/Seminar

On-site & On-line Training



# Manufacturing Workshop

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18000m<sup>2</sup> Manufacturing Base  
R&D Building  
Workshop I  
Workshop II  
....



Panorama

# Technology Strength

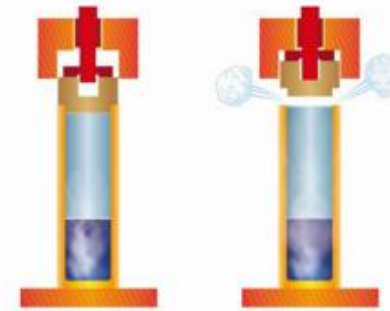
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## ❖ Full Body PFA Coating

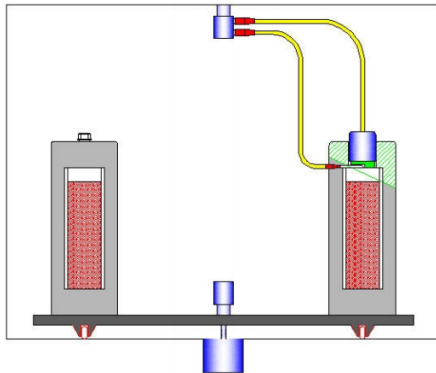


VS

## ❖ Safety Bolt Design(Patented)



## ❖ Junction Box (Patented)



## ❖ High Productivity with High Pressure



High-strength alloy carousel  
(Pressure up to 4Mpa,  
temperature up to 250°C)



# Full-range Series

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SERIES	MDS-6G	JUPITER	MDS-15	MASTER	TANK	TANK PLUS
Installed Power	1800W	1800W	3600W	3600W	2850W	3800W
Max Microwave Output Power	1000W	1300W	1800W	2200W	1600W	2000W
Processing Capacity	6/8	8/10	16	16/18/40/100	12	12/40
Vessel Volume / ml	100	100	100	100/100/70/20	100	100/70
Temperature Control	Pt Sensor	Pt Sensor	Pt Sensor	Pt Sensor & IR	Optical Fiber	IR & Optical Fiber
Pressure Control	Piezoelectric Cristal Sensor	Piezoelectric Cristal Sensor	Piezoelectric Cristal Sensor	Piezoelectric Cristal Sensor	Pressure Pipe (Ideal Gas)	Pressure Pipe (Ideal Gas)

# Service & Support

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- ▢ 12 Experienced Application Engineers
  - ▢ 35 Professional Technical Engineers
    - ▢ 100 Sets of Specific Development Equipment
      - ▢ 1500 Square Meters Modern Professional Laboratory
- ▢ Local Exhibition & Seminar Support
- ▢ Demo Units & Marketing Material
- ▢ On-site & On-line Training

THANK YOU!