

**SINEO**

# MDS-15

## High Throughput Closed Microwave Digestion/Extraction Workstation

Safety and convenient in operation & High in efficiency & Durable in use



# MDS-15

High Throughput Closed Microwave  
Digestion/Extraction Workstation

*Safety And Convenient In Operation*  
*High In Efficiency*  
*Durable In Use*



- Satisfy the requirements of different samples' digestion/extraction processing;
- 65L industrial chamber and dual magnetron design, up to 16 vessels high-throughput processing capacity;
- Exclusive patented multifunctional safety bolt design, instead of explosion-proof membrane and other consumables;
- Aerospace composite fiber outer vessel-the highest level of security measures;
- Bright in appearance and smart in performance;
- 20 years of industry experience with leading customer base and patent number.



# MDS-15

## High Throughput Closed Microwave Digestion/Extraction Workstation

With more than 20 years experience in microwave chemistry instrument industry and the latest technology, MDS-15 high throughput closed vessel microwave digestion/extraction workstation can be widely used in routine laboratories and specially applied under extreme conditions. MDS-15 integrates the latest technologies and materials, provides excellent experience when in operation:

**Safety and convenient in operation:** The highest level of security measures adopted such as the use of aerospace composite fiber vessel and safety bolt (patented);

**High in efficiency:** Up to 16 vessels high-throughput processing capacity, and 20 minutes cooling down time;

**Durable in use:** The use of high-quality materials such as corrosion-resistant Ultra-long life 316L stainless steel industrial chamber, etc;

Sineo is always striving for perfection and makes breakthrough in technology, process, materials and application development in microwave chemistry instruments. MDS-15 meets the needs of various industries and provides customers the safe, convenient, efficient, durable products and superior experience.

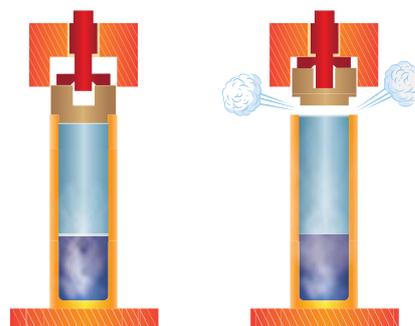
The outer vessel of MDS-15 exclusively made by Ultrastrength aerospace composite fiber is invincible in anti-explosion, and its performance indicators such as corrosion resistance, high temperature/impact/pressure resistance are far better than that of the widely used modified PEEK engineering plastics vessel (this material is fusible at high temperature, fragile at high pressure and explosive by chemical corrosion), fundamentally eliminating safety risks to operator in use.



# MDS

## *Safety And Convenient In Operation High In Efficiency e<sup>3</sup> Durable In Use*

Quantified vertical blast/safety bolt design, ensures samples be closed completely and trigger a quantified pressure relief while over pressure; safety bolt (patent) unit, instead of safety membrane and other consumables, ensure the digestion vessel be sealed completely under normal working conditions, that avoids the loss of volatile elements and incomplete digestion. And only when the pressure is large enough and may constitute a danger to the safety, the safety bolt will automatically blow out vertically and the cover auto-up to release the pressure, achieving quantified vertical blast pressure-relief to guarantee its well operation. Under normal operation, the safety bolt won't blow out and requires no replacement. In addition, it is easy for venting to open the cover after completion of digestion.



The industrial-leading pressure measuring technology by piezoelectric crystal and high-precision Pt sensor temperature measurement and control, through closed-loop control of microwave power by inverter technique, ensure the accuracy of pressure and temperature monitoring and control. The application of patented piezoelectric crystal brings complete isolation of samples from pressure measurement system in digestion process, thoroughly solving the problems of cross contamination of samples due to commonly used air pipe in market and of the limitation in digestion samples because of low-pressure proof of air pipe.

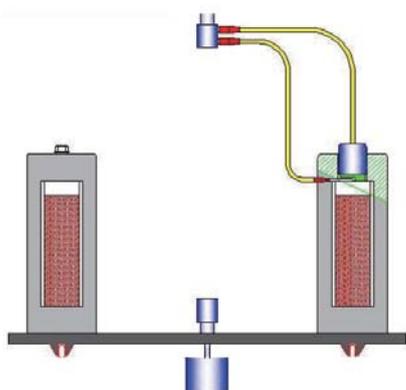
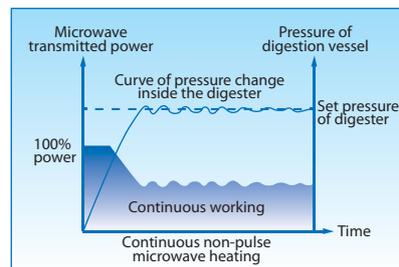
The new industrial design is smart and colorful, that in line with the needs of modern laboratory building. It re-layout its internal structure more scientifically, with the 65L industrial 316L reactor chamber and dual magnetron structure, ensures uniform heating of the microwave and high microwave power emit.



# S-15

# DS-15

Automatic Frequency Control of Non-pulse Microwave Power ensures the accurate closed-loop control of the temperature and pressure, and also improves the efficiency of microwave transmitter of magnetron. 16 vessels per batch throughput capacity increase the efficiency of sample preparation in the lab.



The whole set of digestion vessels was designed to rotate continuously in one direction, breaks conventions of  $<360^\circ$  back and forth rotation, avoiding uneven heating on vessels and reducing impact on turntable motor to extend service life. The temperature and pressure cable are short, that they are free from twisting in running and can be disassembled easily.

Sturdy and durable industrial-grade chamber design strengthen its impact resistance, and multi-layer chemical resistant coating greatly improves the service life and safety of the system, it can longtime resist acid and alkali, and may withstand temperature up to  $350^\circ\text{C}$ ; the popup cushioning explosion-proof sliding chamber door builds a passive safety protection system, and it can disable the microwave power automatically when explosion happens; efficient exhaust system design achieves fast and safe air-cooled cooling (20 min cooling time from  $200^\circ\text{C}$  to  $60^\circ\text{C}$ ), improving operational efficiency.



**The Popup Cushioning Explosion Proof Sliding Chamber Door**

## Main Technical Parameters:

<b>Power</b>	220~240 VAC 50/60Hz 16A
<b>Microwave source</b>	2450MHz, dual magnetron design
<b>Installed power</b>	3600W
<b>Maximum output power</b>	2200W, non-pulse continuous automatic variable frequency control
<b>Cavity</b>	65L industrial grade 316L stainless steel chamber, multi-layer chemical resistant PFA coating
<b>Door design</b>	6 layer steel structure and popup cushioning explosion-proof sliding chamber door design, electronic and mechanical dual-control door lock
<b>Turntable design</b>	Load 16 GP-100 closed digestion vessels simultaneously
<b>Pressure measurement and control system</b>	Piezoelectric crystal pressure sensor, pressure control range :0~10MPa (1500 psi), accuracy $\pm 0.01$ MPa
<b>Temperature measurement and control system</b>	High-precision platinum resistor temperature sensor, temperature range :0-300°C, accuracy $\pm 1$ °C
<b>Outer vessel material</b>	Explosion-proof outer vessel made of aerospace composite fiber
<b>Inner vessel material</b>	Modified TFM material
<b>Chamber exhaust system</b>	High-power anticorrosion axial fan, 20 minutes cooling time (from 200°C to 60°C)
<b>Working environment</b>	0~40 °C, 15~80%RH
<b>Whole physical size/weight</b>	550 × 670 × 700mm, 70 KG

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**Standard configuration:** 16 GP-100 Ultra strength closed vessels with outer vessels and frames.

## GP-100 Ultrastrength frame closed reaction vessel:

<b>Maximum Pressure</b>	10MPa (1500psi)
<b>Maximum sustained temperature</b>	300°C
<b>Inner vessel volume</b>	100ml
<b>Outer vessel material</b>	Ultrastrength aerospace composite fiber, can stand up to 600 °C and 66 MPa (10000 psi)
<b>Inner vessel material</b>	TFM
<b>Maximum batch capacity</b>	16 vessels



## Application area:

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.



Certificate No.1610/IN-IST-12



ISO9001: 2008 and UKAS certificate of quality system

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