

Infitek

MICROWAVE DIGESTION SYSTEM



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Microwave Digestion System

MDS-100-R8



Application Fields



Description

- MDS-100-R8 is a sample pretreatment device that uses microwave energy to heat acids and samples in a closed container, rapidly and efficiently decomposing (digesting) solid or complex organic/inorganic samples into clear solutions under high temperature and high pressure conditions. Equipped with multiple active and passive safety protection functions, a specific mid-infrared non-contact temperature sensor that can penetrate TFM scans and monitors the true temperature of each sample solution in real time. The full tank pressure control technology ensures precise pressure relief for each reaction tank, ensuring the digestion of various samples in the most economical and efficient way to achieve the best results.

Specification

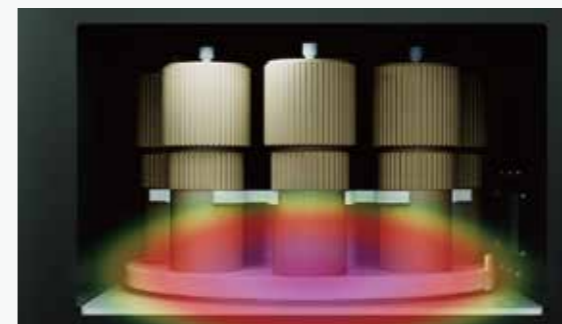
Model	MDS-100-R8
Vessel Quantity	8
Vessel Volume	100ml
Temperature Measurement Range	RT. ~ 400 °C, accuracy: 0.1 °C
Temperature Control Range	RT.~250 °C
Pressure Control Range	0~5Mpa
Digestion Vessel	Made of high temperature resistant and corrosion resistant materials; Max. temperature resistance: ≥300 °C; Max. pressure resistance: ≥15MPa;
Vessel Material	Inner: TFM, bottom thickness ≥18mm Outer: PEEK
Microwave Cavity	316L stainless steel furnace cavity, laser welded, with multi-layer PFA corrosion-resistant coating inside
Digestion Rotor	360° continuous rotation
Microwave Power and Frequency	Magnetron design, microwave output power ≤1000W, continuous, non-pulse mode microwave emission, 0-100% power fully automatically and continuously adjustable, microwave emission frequency: 2450 MHz
Working Environment	Ambient temperature: 5~40 °C, humidity: 15~85%
Electricity	220~240 VAC, 50/60 Hz, 10A, 1500W

Features

- Furnace door and door lock structure**
 High-strength safety explosion-proof door, side-opening door opening method and floating buffer design, can float and release part of the pressure when the pressure in the cavity is too high, taking into account both safety and ease of use.
- Corrosion-resistant exhaust system**
 High-flow exhaust system efficiently dissipates excess heat from the exterior walls of digestion vessels during the digestion process, prolonging operational lifespan and enabling rapid post-digestion cooling.
- Sample loading mode**
 Load or unload samples one by one without the need of moving the rotor.
- Temperature control mode**
 Utilize mid-infrared non-contact temperature sensor capable of penetrating TFM material to scan and monitor the actual temperature of all sample solutions in real time and display the temperature change curve.
- Pressure control mode**
 The fully sealed design prevents pressure release during digestion, ensuring safety. This enhances sample digestion capability, particularly for difficult-to-digest samples. Precise pressure control for each reaction vessel guarantees operational safety.
- Active and passive safety protection**
 Features real-time full-sample temperature monitoring, over-temperature/over-current protection, abnormal noise detection, and a self-diagnostic fault alarm. Combined with high-temperature/-pressure resistant vessel materials and a high-volume centrifugal exhaust fan.
- Smart control**
 Built-in touch screen control, various working parameters and status shown on screen in real time.
- Method setting**
 100 digestion method parameters can be set, modified, and stored at any time, and each method can have up to 10 digestion stages.
- Powerful function**
 Built-in automatic cooling mode and functions like multi-level user interface management, power correction, temperature calibration.

Microwave focusing technology

Accurate heating: Realize more precise and uniform heating effect, avoiding uneven heating phenomenon in microwave heating.

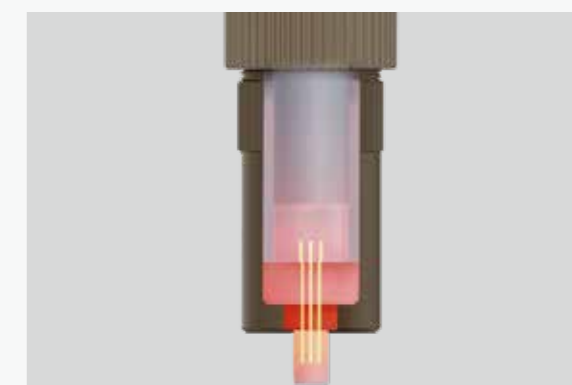


High efficiency and energy saving: improve heating efficiency, reduce energy waste, and thus save energy.

Safety and environmental protection: avoid the harm of microwave radiation to human body and environment, with better safety and environmental protection.

High-precision true temperature feedback

Mid-infrared temperature sensor, real-time scanning and monitoring of the actual temperature of all sample solutions.



Full vessel pressure control

The safety pressure-limiting design ensures the digestion vessel is completely sealed and leak-proof during normal operation. In case of over-pressure, it automatically relieves pressure, guaranteeing operational safety.

Microwave Digestion System

MDS-610-T6

MDS-610-T10

MDS-610-T12



Features



Compatible with 6/10/12-position sample rotor.



High power turbulent air cooling design makes fast cooling.



Imported contactless IR sensor and pressure sensor, real-time display the temperature and pressure of sample solution (NOT Vessel Wall) in each vessel and show T&P scanning curve.



No consumables, e.g. bursting disk, sealing cup, etc. lower maintenance cost.



Professional electromagnetic protection design, compatible with high-level microwave leakage protection standards.



Equip with smart 7 inches touch screen, user-friendly UI.



Pre-installed multiple international application methods. Users can also edit, modify and delete the methods.



Equip with 316L stainless explosion-proof cavity, coated with multi-layer anti-corrosive and heat resisting coatings, which greatly prolongs its service life and ensure the safety of operation.



Specification

Model	MDS-610-T6	MDS-610-T10	MDS-610-T12
Vessel Quantity	6	10	12
Vessel Volume	100mL		
Temperature Monitoring	Contactless IR Sensor Temperature Monitoring		
	Each Vessel Temperature Controlled		
	Temperature Controlling Range: 50-400 °C		
	Max. Working Temperature: 250 °C		
Pressure Monitoring	Temperature Accuracy: ±0.1 °C		
	Contactless Sensor Pressure monitoring		
	Each Vessel Pressure Controlled		
	Pressure Controlling Range: 0-15MPa		
Sample Vessel Material	Max. Working Pressure: 6Mpa		
	Pressure Accuracy: ±0.01MPa		
	Imported TFM		
Protection Vessel Material	Peek+glass fiber		
Display	7 inch touch screen		
Rotation Mode	One Direction 360° continuous rotating		
Microwave Tank	316L Stainless steel tank with corrosion-proof coating		
Microwave Power	0-1000W (Adjustable)		
Microwave Leakage	<5mW/cm ²		
Air Exhaust	High power corrosion-proof air blower		
Electricity	AC 220V±10%, 10A, 50/60Hz		
External Dimension (L*W*H)	490*560*630mm		
N.W./G.W.	47kg/83kg (Main device+Accessories)		
Package Dimension (L*W*H)	710*640*880mm (Main device),		
	410*400*300mm (Accessories)		

Description

It is newly designed and fully upgraded with higher performance and safer protection system. The smart design and good performance make it warmly welcomed by users.

Microwave Digestion System

MDS-700-T18



Features

Special designed sample digestion vessel



The automatic vent and self-resealing structure ensures the digestion vessels can automatically release pressure and instantly reseal when a sudden over-pressure situation occurs.

Contact-less temperature and pressure monitoring system



The imported contactless IR sensor can measure the real-time temperature of sample solution (NOT Vessel Wall) in each digestion vessel. Meanwhile, the contactless pressure sensor can monitor the real-time pressure of each vessel. It avoids sample cross-contamination, and the real-time temperature and pressure value in each vessel are displayed during the whole digestion process and enables a clear check of digestion condition.

Large storage capacity



Up to 255 kinds of method programs can be edited and saved, each method program can set with max. 10 steps and parameters (temperature, pressure, time, microwave power).

Safety protection system



The double locked security door, the separate protection vessel frame, the real-time temperature and pressure monitoring system, the auto adjustment of over-pressure and over-temperature system and the abnormal sound monitoring ensure that a highly safe operation environment.

Application

It has been widely used in food, textile, geology, metallurgy, plastics, coal, cosmetics, petrochemicals, biomedicine, environmental monitoring, sewage treatment and other fields.

Specification

Model	MDS-700-T18
Vessel Quantity	18
Vessel Volume	100mL
Temperature Monitoring	Contactless IR Sensor Temperature Monitoring
	Each Vessel Temperature Controlled
	Temperature Controlling Range: 50-400 °C
	Max. Working Temperature: 250 °C
Pressure Monitoring	Contactless Sensor Pressure monitoring
	Each Vessel Pressure Controlled
	Pressure Controlling Range: 0-15MPa
	Max. Working Pressure: 6Mpa
Vessel Material	Inner: imported TFM
	Outer: imported PEEK+glass fiber
Display	8-inch touch screen
Rotation Mode	One Direction 360° continuous rotating
Microwave Cavity	316L stainless steel cavity with corrosion-proof coating
Air Exhaust	High power corrosion-proof air blower
Microwave Power	0-3000W adjustable
Microwave Leak	<5mW/cm ²
Microwave Frequency	2450MHz
Power	AC 220V±10%, 10A, 50/60Hz
Dimension(L*W*H)	640*630*590mm
N.W./G.W.	75kg/148kg(Main device+Accessories)
Shipping Dimension(L*W*H)	800*800*810mm (Main device),
	620*590*560mm (Accessories)

Microwave Digestion System

MDS-800-T40



Features

Special designed sample digestion vessel



The auto vent and self-resealing design ensures digestion vessels can automatically release pressure and instantly reseal when a sudden over-pressure situation occurs. It reduces waste of batch samples and also avoids vessel damage.

Contact-less temperature and pressure monitoring system



The imported contactless IR sensor can measure the real-time temperature of sample solution (NOT Vessel Wall) in each digestion vessel. Meanwhile, the contactless pressure sensor can monitor the real-time pressure of each vessel. It avoids sample cross-contamination, and the real-time temperature and pressure value in each vessel are displayed during the whole digestion process and enables a clear check of digestion condition.

Large storage capacity



Up to 255 kinds of method programs can be edited and saved, each method program can set with max. 10 steps and parameters (temperature, pressure, time, microwave power).

Safety protection system



The double locked security door, the real-time temperature and pressure monitoring system, the auto adjustment of over-pressure and over-temperature system and the abnormal sound monitoring ensure that a highly safe operation environment.

Application

It is widely used in food, textile, geology, metallurgy, coal, biology, cosmetics, petrochemical, environment, waste water treatment, battery manufacturing fields, etc.

Specification

Model	MDS-800-T40
Vessel Quantity	40
Vessel Volume	50mL
Temperature Monitoring	Contactless IR Sensor Temperature Monitoring
	Each Vessel Temperature Controlled
	Temperature Controlling Range: 50-400 °C
	Max. Working Temperature: 250 °C
Pressure Monitoring	Temperature Accuracy: ±0.1 °C
	Contactless Sensor Pressure monitoring
	Each Vessel Pressure Controlled
	Pressure Controlling Range: 0-15MPa
Vessel Material	Max. Working Pressure: 6Mpa
	Pressure Accuracy: ±0.01MPa
	Inner: imported TFM
Display	Outer: imported PEEK+glass fiber
Rotation Mode	8-inch touch screen
Microwave Cavity	One Direction 360° continuous rotating
Air Exhaust	316L stainless steel cavity with corrosion-proof coating
Microwave Power	0-3000W adjustable
Microwave Leak	<5mW/cm ²
Microwave Frequency	High power corrosion-proof air blower
Power	2450MHz
Dimension(L*W*H)	AC 220V±10%, 10A, 50/60Hz
N.W./G.W.	640*630*590mm
Shipping Dimension(L*W*H)	78kg/155kg(Main device+Accessories)
	800*800*810mm (Main device), 620*590*560mm (Accessories)

Microwave Digestion System

MDS-Tan40



Application

- Microwave Digestion Workstation is widely used in environmental monitoring, food safety, environmental monitoring, public health and disease prevention and control, petrochemical industry, education and research, metallurgy and other fields.

Features

Comprehensive safety guarantee, combined with anti-corrosion capability

The furnace cavity is made of Grade 316L stainless steel. The 3D adjustable, explosion-proof security door, installed with buffer and choke (to prevent microwave leakage), is self-sealing, impact-resistant and with interlocking linkage mechanism. The aerospace composite fiber outer vessel, wholly sprayed with PFA coating, boasts both higher anti-corrosion and higher pressure-resistance levels, compared to those of PEEK materials.



Dual magnetron inverter control system ensures consistent sample digestion

Microwave Digestion Workstation adopts dual magnetron inverter control system and high-frequency closed-loop PID control, thereby realizing microwave continuous non-pulse output, more uniform microwave field in the cavity, higher energy utilization rate, and consistent sample digestion.



Two LCD screen, displaying real-time operation and experiment status

The 7-inch color LCD touch screen displays real-time data, such as temperature, power, time, and steps. Swift switch to display of coordinate curves greatly facilitates users to better know what is going on with the experiment.

The 5-inch color LCD screen allows clear, real-time observation of operation inside the furnace cavity.

Full-vessel pressure control technology

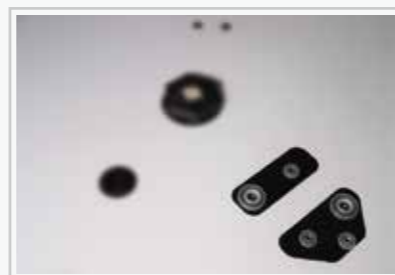
The high-pressure digestion vessel adopts the safety bolt structure; while the auto-release vessel uses the elastic pressure relief and self-sealing technology. Under normal operation conditions, the vessels are completely sealed without leakage.

Under over-pressure conditions, Both paths will trigger a pressure release to ensure a passive pressure protection.



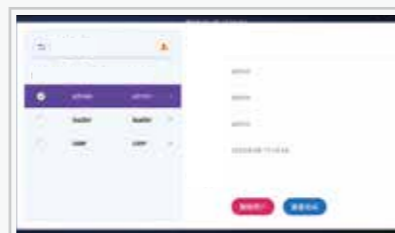
Full-vessel precise temperature control and monitoring, ensuring safety and digestion performance

Non-contact mid-infrared sensors at bottom monitor and visualize real-time temperature change of sample solution inside each digestion vessel. The whole vessel temperature control system effectively monitors abnormal conditions during digestion experiment. Once abnormal temperature is detected, the vessel immediately stops microwave emission and starts to sound the alarm, so that experimental safety is not disturbed.



Smart software operation

The vessel, running on the Android operating system, is convenient and multi-functional. It offers many functions, such as electronic signature, hierarchical permission and audit trail. The software automatically identifies model of the turntable and automatically counts the number of vessels, making the experiment easier and faster, with the absence of tedious manual counting and input.



Various supporting tools, making experiment easy and convenient (Optional)

Various tools are supplied to reduce workload for operators and improve the work efficiency of sample preparation. For example, a mobile and flexible tool trolley is able to transfer rotor loaded with sample into and out of furnace cavity, avoiding direct contact between operator and digestion vessel for safety concerns.



Specification

Model	MDS-Tan40
Working environment temperature	0~40 °C
Relative humidity for working environment	15~80%RH
Microwave source	2450MHz; Max. microwave output power 2000W, emitted from Dual magnetron inverter high-energy microwave field; non-pulse continuous microwave output
Installed power	3800W
Microwave cavity	Grade 316L stainless steel microwave resonant cavity, with a wall thickness of more than 3mm, sprayed with multi-layer PFA coating.
Furnace exhaust system	Automatically adjusted air volume; cooling to room temperature in less than 15 minutes
Dimensions(W*D*H)	600×685×660
Net weight	62kg

Vessel type	High-Pressure	Auto-release	High-Pressure	Ultra High-Pressure
Batch amount	40 vessels	40 vessels	24 vessels	18 vessels
Inner vessel material	TFM	TFM	TFM	TFM
Outer vessel material	Aerospace composite fiber	Aerospace composite fiber	Aerospace composite fiber	Aerospace composite fiber
Inner vessel volume	70mL	55mL	110mL	100mL
Max. temperature	300 °C	300 °C	300 °C	320 °C
Max. pressure	15Mpa	15Mpa	15Mpa	15Mpa

