



## MDS-100G, Closed Microwave Digestion/Extraction System

MDS-100G microwave digestion/extraction/synthesis system (nickname: SMART), a subversion of tradition, is a market-oriented practical compact microwave digester made by MRC with its over 20 years' experience; It highlights the company's three major ideas of product design and also meets users' needs in "safety" "durability" and "convenience of operation."

- The patented design that the whole set of digestion vessels in chamber always continuously rotates in one direction, breaks conventions of <math><360^\circ</math> back and forth rotation of the digestion unit, avoiding uneven heating on vessels by microwave and reducing impact on turntable motor, extending service life.
- Sturdy and durable industrial-grade chamber design strengthen its impact resistance; Professional focused microwave design make microwave heating more efficient; Multi-layer chemical resistant coating greatly improves the service life and safety of the system; the popup cushioning explosion-proof sliding chamber door builds a passive safety protection system, easing operation; double-locked self-checking system of the chamber door & the push-type open-door mechanism at the top make the operation simple and easy; efficient exhaust system design achieves fast & safe air-cooled cooling, improving operational efficiency.

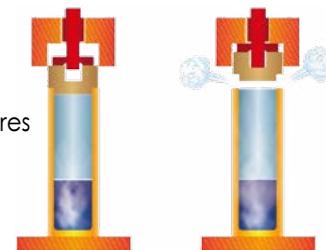


- The outer vessel of SMART exclusively made by ultra-strength aerospace composite fiber is invincible in anti-explosion, & its performance indicators such as corrosion resistance, high temperature/impact/pressure resistance are far better than that of the widely used modified PEEK engineering plastics vessel (this material is fusible at high temperature, fragile at high pressure and explosive by chemical corrosion). The compressive strength of aerospace composite fiber is up to 10000psi and temperature 500-600°C, fundamentally eliminating safety risks to operator in use.



- Quantified vertical blast/safety bolt design, ensures samples be closed completely and triggers a quantified pressure relief while over pressure; safety bolt (patent) unit, instead of safety membrane & other consumables, ensure the digestion vessel be sealed completely under normal working conditions. 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 technology, ensures the accuracy of pressure and temperature monitoring and control. The application of patented piezoelectric crystal brings about 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 Gold Award in Automatic Frequency Control of Non-pulse Microwave Power on BCEIA represents that the company not only achieves the accurate closed-loop control of the temperature and pressure, but also improves the efficiency of microwave transmitter of magnetron, realizing energy saving (37.5%).

### 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



Ultrastrength frame closed reaction vessel:

Maximum Pressure	15MPa (2250psi)
Maximum sustained temperature	300°C
Maximum working temperature	250°C
Inner vessel volume	100ml
Outer vessel material	ultrastrength aerospace composite fiber
Inner vessel material	TFM (Modified PTFE)
Maximum batch capacity	8 vessels

Model	MDS-100G
Power	220-240 VAC 50/60Hz 8A
Microwave frequency	2450MHz
Installed power	1800W
Maximum output power	1000W, non-pulse continuous automatic variable frequency control
Turntable design	Load 8 if closed digestion vessels at same time
Pressure measurement & control system	Piezoelectric crystal pressure sensor, pressure control range :0-10MPa (1500 psi), accuracy $\pm 0.01$ MPa
Temperature measurement & control system	High-precision platinum resistor temperature sensor, temperature range :0-300°C, accuracy $\pm 1$ °C
Outer vessel material	Explosion-proof outer vessel made of aerospace composite fiber
Inner vessel material	TFM material
Chamber exhaust system	High-power anticorrosion axial fan, exhaust speed: 3.1 m <sup>3</sup> /min
Operating ambient temperature	0-40°C
Working environment humidity	15-80%RH
Whole physical size	450 x 515 x 510mm (W x D x H)
Net weight	40 KG