SINEO

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TANK

Microwave Sample Preparation Workstation

Master of microwave technology

Safe, Professional and Efficient

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12-vessel High-throughput processing capacity, meeting the needs of all kinds of sample preparation;
Advanced multicore integrated optical fiber temperature control system, with precise temperature control and uniform digestion;
UCOS-II operating system, with remote control observation, easy and comfortable operation;
Aerospace fiber outer vessel, COT real-time temperature and pressure abnormity monitoring system and other multiple safety protection design;
Free lifetime warranty commitment for the core part-magnetron;
With over 20 years of experience in the industry Sineo is known as a innovation leader with numerous patents;

The TANK microwave digester has been adhering to the principle and concept of "safe experiement", "efficient and convenient operation" and "durable use" from R&D to production. It can be widely used in routine laboratories and also applied under extreme conditions. TANK adopts advanced dual magnetron non-pulse frequency microwave heating technology, realizing the high power microwave heating & homogeneous heating; TANK has more than 20 safety guarantee technologies to ensure that TANK has high level of safety performance and data accuracy; At the same time, TANK's highly intelligent man-machine dialogue operation system and wireless control module make the experiment process become efficient, convenient and humanized, and bring safe and comfortable experience to users.

Main features

- Optical fiber temperature control system is safe, meanwhile it can realize accurate temperature control. Optical fiber avoids the drawbacks of antenna effect of conventional metal resistance temperature sensor, and solves multi-vessel digestion temperature deviation and uneven heating. Sineo adopts advanced multicore integrated optical fiber sensor, with an optical fiber diameter of 2 mm, its uses Teflon protective coating, and has small bending curvature, good fold-resistant and flexibility. The service life is 5 times longer than the single core optical fiber. TANK adopts advanced high-precision semiconductor pressure sensor, the whole conduction path conducts the anticorrosion treatment, realizing precise pressure control, with pressure precision of ±0.01MPa.

- TANK series has 2 magnetron, and its inverter microwave heating makes real-time adjustment of microwave output power according to the temperature and pressure feedback, thus the microwave field is more uniform and the control more precise. Inverter microwave heating can avoid the disadvantages of pause heating and frequent startup, effectively protect the magnetron, and reduce energy loss. Double magnetron heating and professional microwave focusing design can make the magnetic field distribution inside the furnace chamber more even, ensuring the consistency of the experimental sample digestion.

- TANK adopts aerospace composite fiber materials Xtra Fiber to make the outer vessel which is invincible that can withstand 80 MPa pressure, completely eliminating the possibility of radial blasting. Its corrosion resistance, high temperature resistance and shock pressure and many performance indexes are excellent, fundamentally solving the dangers in the process of using.

- TANK adopts ARM chip equipped with UCOS-II operating system, with stable and reliable operation. It uses 7 inches of LCD touch screen, with touch control for operation, smooth and simple. The screen gives the real-time display temperature- pressure curve. It has a built-in expert method library, which can be edited and store user methods. Built-in COT real-time T/P abnormity monitoring system can give automatic alarm when any reaction vessel has abnormal temperature and pressure, and cut off the microwave so as to protect the instrument. PRO version (TANK-PRO) has the Wi-Fi wireless control module, not only realizing point to point control between the computer and the microwave digestion instrument, but also using a tablet PC to realize control and real time observation within the local area network (LAN). It brings better experience for "comfort experiment and safe experiment". PRO version also adopts double screen design and is equipped with 5 inches of LCD color display for real-time monitoring of digestion vessel operation inside the furnace chamber through internal camera.

- With TANK 12-vessel of high throughput digestion capacity, it meets the pretreatment requirements of bulk samples. It adopts high-strength composite materials for enhancing strength, and reaches 1.7 tons of tensile test requirements, and its high pressure resistant frame is of thickening customization and can bear the high pressure during digestion. PEEK elastic tablet can resist high temperature, has larger rigidity and stable dimension, reach 19 MPa for bending strength and compression strength at 260°C, and can protect PFA vessel cover from being damaged during the digestion. TANK digestion tank adopts the design of automatic pressure release, which puts an end to the occurrence of dangerous high pressure explosion, and cancels safety membrane and other consumables, simple use and low cost.

- TANK's 316L stainless steel industrial furnace chamber adopts modular design concept, providing great convenience for the upgrading and maintenance of equipment. The furnace door is made of multiple protective layers, and internal furnace chamber adopts multi-layer Teflon coating, greatly improving the service life and safety guarantee of the instrument. The optimized groove structure design can eliminate the microwave leakage. It will automatically cut off microwave when the door is opened naturally or forcibly, protecting the user's safety. Efficient exhaust system design can realize the fast and safe air cooling (drop from 200°C to 80°C within 15 minutes), improving operation efficiency.

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Main Technical Parameters:

Power supply	220～240VAC 50/60Hz 16A
Microwave source	2450MHz, dual magnetron design
installed power	2850W
Maximum output power	1600W, microwave non-pulse continuous automatic frequency conversion control
Microwave chamber	316L stainless steel chamber, applied with multi-layer anticorrosive Teflon inside and outside
Door design	Safety door designed based on the 3D directional explosion mechanism, with the integrated groove structure design of microwave leak prevention
Pressure monitoring system	High precision semiconductor pressure sensor, with pressure control range: 0-10MPa(1500psi), accuracy: ±0.01MPa
Temperature monitoring system	Multi-core integrated optical fiber temperature control system, Teflon protective coating, temperature measuring range: -40-305°C, accuracy: ±0.1°C
Passive protection system	COT real-time temperature and pressure monitoring system, automaticly alarm when any reaction tank has abnormal T/P, and cut off the microwave immediately to protect the user and instrument.
Software	ARM chip equipped with UCOS-II operating system for multi-task operation, TANK equips with 7 inch LCD color touch screen, and connected to computer for remote control.
Wireless control system	TANK-PRO version is equipped with Wi-Fi wireless control module, tablet PC can be used to realize control and real-time observation of the internal operation inside furnace chamber.
Communication interface	TANK-PRO version is equipped with 232 serial port and USB interface
Video monitoring	TANK-PRO version is equipped with 5 inch LCD color screen, which can conduct the real-time monitoring of digestion tank operation inside the chamber through the internal camera.
Chamber exhaust system	High-power corrosion-resisting turbine fan, with turbulent and efficient air cooling, fast 15 min cooling from 200°C to 80°C.
Working environment	0~40°C/ 15~80% RH
Physical size / weight	600*685*660mm (Width x Depth x Height), 75KG

TK-100 (model) Closed High-pressure Reaction Tank:

Maximum design pressure:	15MPa (2250psi)
Maximum design temperature:	300°C
Inner vessel volume:	100ml
Tank frame materials:	PP&glass fiber high-strength composite materials
Outer vessel material:	aerospace composite fiber materials Xtra Fiber
Inter vessel material:	TFM (reinforced modified PTFE)
Largest batch processing capacity:	12 vesssels

TK12 DigiBlock Heating Panel:

Temperature range:	Room temperature +5 - 240°C
Temperature accuracy:	±1°C
Heating block material:	Aluminum alloy with teflon coating
Heating insulation method:	Ceramic fiber and unique air duct insulation technology
Capacity per batch:	12 Pcs/Batch
Power supply:	220-240VAC, 50/60HZ, 1500W

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