

PREPS Remarkable innovation in
Automated Microwave Digestion

● **PreeKem** Enhanced Robotic Preparation Workstation

PREPS DESCRIPTION



PIONEER IN AUTOMATED MICROWAVE DIGESTION

This completely hands-free, multi-tasking digestion platform is the first of its kind and drives sample throughput to an unprecedented level.



PRECISE ROBOTIC CONTROL

The versatile robotic arm takes precise control of acid dispensing, sample mixing, volume topping, and transferring sample solution.



SUPERB SYSTEM RELIABILITY

18 years of dedicated effort in delivering highly reliable microwave digestion platforms even for an unattended digester.



THOROUGH DIGESTION AND EFFICIENT COOLING

Unique microwave focusing technology coupled with vortex blower cooling design reduces the whole process to only 10-15 minutes.



UNCOMPROMISING SAFETY MECHANISM

The intelligent and dynamic safety monitoring system keeps working pressure and temperature under real-time control, providing highest level of safety protection.

[Invention Patent No. ZL 2015 1 0586879.7]

1

ACCURATE ACID DISPENSING

The independent, multi-channel acid dispensing system offers lab technicians the accuracy and flexibility of delivering maximum 3 types of acid in one digestion. The high precision syringe pump ensures accuracy of acid volume.

2

AUTOMATIC SAMPLE IDENTIFICATION

The position identifying sensor keeps sample running in order.

3

MULTI-FUNCTION PROBE

The adjustable probe depth and acid flow rate washes off all residual samples on the wall, leaving no particles undigested.

4

REAL-TIME SAMPLE TRACKING

Intelligent sampling will never miss or lose a sample, thanks to the infrared sensor that scans the sample rack and monitor the whole digestion process.

5

SAFETY COVER

The cover only opens when chamber internal temperature and pressure are not exceeding safety threshold.

6

ALL-AROUND ANTI-CORROSION

The robotic arm and all tubings employ high-quality anti-corrosion coating material to eliminate acid damage to the instrument.

PREPS ALLOW EACH SAMPLE AN INDIVIDUAL SOLUTION

Start a new era of microwave digestion

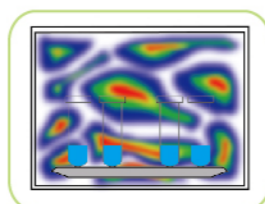


TOPEX+

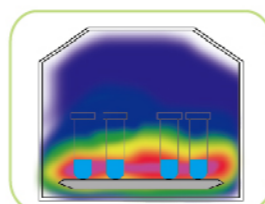
MICROWAVE DIGESTION SYSTEM

1 PROPRIETARY MICROWAVE ENERGY FOCUSING

- High efficiency microwave emission
- Controlled and guided microwave deflection
- Uniform in-cavity microwave distribution



Microwave in common cavity



Microwave in TOPEX+ cavity

2 SOFTWARE

- Built-in high-resolution touchscreen interface
- Easy method setup with stylus pen
- Instant digital display of run progress
- Convenient storage, review, and export of run data



3 MICROWAVE SOURCE

- Microwave generation via two staggered magnetrons
- Roof microwave reflection and guide technique to enhance microwave density and heating efficiency

4 SAFETY FEATURES ON THE DOOR

- Auto-locking system secures door while a digestion run is in motion.
- Floating cushion design allows instant pressure release and resealing after.
- Microwave disabled by the integrated emergency brake system when the door is not securely closed.



GT-400



GT-240



KJ-100



KJ-160



Turnplate & Vessel Design	KJ-100	KJ-160	GT-240	GT-400
Number	10	15	24	40
Material of Inner Vessel	TFM	TFM	TFM	TFM
Material of Sleeve	PEEK	PEEK	PEEK	PEEK
Volume of Inner Vessel	100mL	100mL	100mL	60mL
Max. Working Pressure	60bar	50bar	35bar	20bar
Max. Tolerance Pressure	150bar	120bar	120bar	100bar
Max. Working Temperature	260°C	250°C	240°C	220°C
Max. Tolerance Temperature	310°C	310°C	310°C	310°C

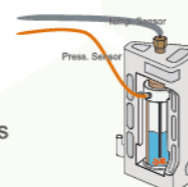
5 IR SENSOR FROM BOTTOM

- The bottom exterior surface is measured.
- contactless IR sensor measure real reaction temperature..
- Less solution can be used.



6 DUAL REACTION CONTROL

- PT sensor allows accurate temperature measurements inside the vessel.
- High-precision pressure sensor measures real-time pressure.
- PID control system stops microwave if the pressure is perceived over safe limit.



7 PRESSURE RATE CONTROL MODULE

- The software regulates the increase rate of pressure to avoid overpressure in some violent exothermic reactions.
- Control range:0-10 bar/s

8 AUTO OVERPRESSURE VENTING TECHNOLOGY

- Triggered at a designated pressure threshold
- Extends the lifetime of digestion tubes

WX-6000

MICROWAVE DIGESTION SYSTEM

DESIGNATED SUPPLIER FOR AQSIQ

General Administration of Quality Supervision, Inspection, and Quarantine

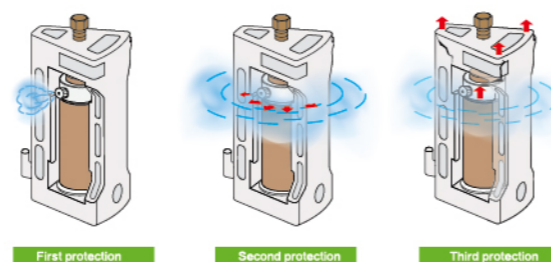
WX-6000 is widely considered a standard digestion platform for low sample throughput labs with high digestion performance and superb cost-effectiveness.

This versatile digestion platform provides users straightforward and intuitive operation and can be applicable to a variety of application fields such as food, pharmaceutical, environmental, and so on.



Turnplate & Vessel Design	KJ-180
Number	6
Material of Inner Vessel	TFM
Material of Sleeve	PEEK
Volume of Inner Vessel	100mL
Max. Working Pressure	40bar
Max. Tolerance Pressure	100bar
Max. Working Temperature	240°C
Max. Tolerance Temperature	310°C

Safety Mechanism



Notes:

- 1st protection: pressure release via safety diaphragm
- 2nd protection: horizontal skirt-side pressure release
- 3rd protection: vertical pressure release

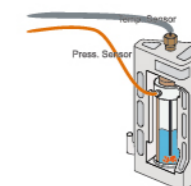
INNOVATION

- Redesigned tilted control panel and color LCD display screen, creating a fun and user-friendly operating interface
- Dual locking mechanism provides an extra layer of security to lab technicians
- Large-volume digestion vessel guarantees digestion performance by high temperature and pressure capabilities

FEATURES

MICROWAVE SOURCE

- 1000W microwave magnetron
- Advanced frequency transducer to supply continued non-pulse microwave
- PID control system to allow automatic power adjustment based on in-vessel temperature and pressure fluctuation



DUAL TEMPERATURE AND PRESSURE MONITORING

- Platinum thermal temperature sensor and high precision vapor pressure sensor
- Detect and display temperature and pressure in real-time with high accuracy
- Convenient plug-n-play operation

INTELLIGENT SOFTWARE

- Colour LCD display with touch-screen function
- Display of method and process details such as temperature, pressure, time, power, and run progress
- Intuitive operation interface

DIGESTION VESSELS

- Standard 6-channel KJ-180 high pressure resistant vessels
- Max volume 100 mL to enable digestion of large sample sizes
- Triple pressure release mechanism for safe digestion
- Energy locked-in by high degree sealing to prevent loss of volatile analytes