ultraWAVE
TECHNICAL SPECIFICATIONS

MILESTONE
HELPING CHEMISTS

HARDWARE

- High pressure single reaction chamber (SRC) in stainless steel
- Chamber volume 990 ml with 900 ml TFM liner
- Capability to run digestion with any chemistry (including aqua regia) with vials closed with loosing fit caps
- SRC design enables the same temperature and pressure to be achieved in all samples simultaneously
- Auto-lift mechanism for automated loading of the sample rack into the SRC
- SRC securely closed by double interlocked stainless steel clamps
- Sensors ensure the correct positioning of the SRC cover during automatic opening and closing of the SRC
- High microwave power (1500W) for fast heating
- Microwave energy optimized to the shape of the SRC for even energy distribution (no sample rotation is needed) and maximum efficiency
- Thick acrylic shield with automated lift/ close for maximum operator safety
- Integrated twin exhaust system extracts acid fumes away during chamber opening
- Pre-pressurization of the chamber with an inert gas to prevent sample boiling and eliminate risk of cross-contamination
- Automated pressure release at the completion of the microwave program and cooling step
- Dedicated powerful external cooling system (1000W or superior) to enable quick cooling
- SRC is water cooled for fast cool down step and increased sample throughput
- Failsafe mechanism to safely release pressure inside the cabinet in the case of an overpressure situation (over 199 bar)
- Analog manometer for easy reading of SRC pressure from across the lab
- Safety valve enables manual release of pressure after a digestion cycle, in case of power failure
- Changing of the backlit logo colour based on the system status (heating, cooling, stand-by, error messages, etc...)
- Stirring capabilities (Option)

USER INTERFACE (TERMINAL 660)

- Control terminal touch-screen 6,5” TFT display, 640x480 VGA resolution with 262K colors, 5 USB ports, 1 RS232 port, 1 LAN port, 2 Video ports. Balance, Printer, mouse and keyboard connections
- Operating software: icon-driven multi-language software (Chinese, English, French, German, Italian, Japanese, Polish, Portuguese, Russian, Spanish, and Turkish), software with multilevel access allowing the user/administrator the edit, save and run a virtually unlimited number of methods
- Software features: built-in application library divided by application fields, including all digestion parameters (sample amount, reagents type and volume, time, power, temperature, pressure)
- Additional features: PDF creator; sample table; 21 CFR part 11 compliant; auto-save of the runs

MILESTONE CONNECT

- Web based app for most devices (PC, tablets or smartphones) to control/monitor the unit
- Database with an extensive library of information (list of parts, technical notes, user manuals, video tutorials, updated application notes, a complete library of relevant scientific articles, and an online help section
- Wireless control of the system from any device using Milestone Connect on the same network

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REACTION SENSORS

- Temperature sensor directly in contact with the solution of the main vessel
- Temperature sensor to directly monitor and control the temperature in the SRC and in all vials simultaneously
- Operating temperature up to 300°C
- Pressure transducer to directly monitor and control the pressure in the SRC and in all vials simultaneously
- The stainless-steel reactor has been tested at 330 bar
- Operating pressure up to 199 bar
- Built-in temperature sensor to monitor and control the external temperature of the chamber, preventing overheating
- Built-in sensors to monitor magnetron and microwave antenna temperatures

OTHER FEATURES

- Capability to process different sample types and different digestion chemistries within in the same run, and at the same temperature and pressure conditions
- Disposable glass vials can be used, eliminating the vial cleaning step
- Capability to digest samples in glass, quartz or PTFE-TFM vials - even within the same run
- Capable to work with different vials volume in the same rack, such as 15ml and 40 ml vials or 15ml and 10ml vials
- Vials fitted with simple, loose fitting caps - vessel assembly/disassembly is eliminated
- Minimum acid volume 1-4mL
- Digested sample can be stored in the vial - no transfer error or additional contamination risk due to transfer

OTHER INFORMATION

- Dimensions: 510 (w) x 684 (d) x 848 (h) mm
- Weight: 105 Kg
- Power supply: 230 V, 50-60 Hz

RACKS AND VIALS

Racks	Vials Material	Vials Volume
4	Glass, PTFE/TFM, Quartz	70 ml (45 ml and 70 ml for the quartz)
5	Glass, PTFE/TFM, Quartz	40 ml
8	PTFE/TFM, Quartz	18 ml
15	Glass, PTFE/TFM, Quartz	15 ml
19	Glass	10 ml
22	Glass, PTFE/TFM, Quartz	10 ml (7 ml PTFE/TFM)
26	Glass	6 ml

Rack for mixed vials volumes	Vials Material	Vials Volume
18	Glass, PTFE/TFM, Quartz	6x15 ml; 12x10 ml
8	Glass, PTFE/TFM, Quartz	3x40 ml; 5x15 ml