ETHOS™ Easy Configuration
TECHNICAL SPECIFICATIONS

MILESTONE
HELPING CHEMISTS

HARDWARE

- Microwave cavity: 316 stainless steel housing with multi-layer of corrosion resistant coating
- Inlet/Outlet ports: large flange with 36 mm ID. Additional multiple ports on the side walls of the microwave cavity
- Chassis protected: against acids & solvents with polymer coating on both inner and outer surfaces
- Door: completely made of stainless steel, safety self-resealing pressure responsive door, automatic door locking system
- Safety features: four independent door safety interlocks to prevent microwave emission in case of improper door closure or misalignment
- Exhaust system: built-in, located on the back of the microwave cavity and separated from the electronics to prevent corrosion
- Colored LED strips on the top and bottom of the door provide real-time visualization of process status
- Magnetic stirring (optional): software-controlled invessel magnetic stirring of solution up to a speed of 3400 rpm
- Microwave emission: dual magnetron system with rotating diffuser for homogeneous microwave distribution in the cavity. Exclusive magnetron protection from reflected microwave power. Simultaneous microwave emission from both magnetrons
- Magnetron frequency: 2450 MHz
- Magnetron output: 2 x 950 Watt, continuous and PID-controlled microwave emission at all power levels
- Microwave cavity volume: 70,5 L
- Microwave cavity dimensions: 430 (w) x 400 (d) x 410 (h) mm

USER INTERFACE

- Control terminal touch-screen 5” display, 800x480 pixel, n°1 USB port
- 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 aand volume, time, power, temperature, pressure)
- Additional features: PDF creator; 21 CFR part 11 compliant

MILESTONE CONNECT

- Web-based platform accessible from any device (PC, tablet, or smartphone)
- 24/7 support through a knowledge hub with extensive documentation
- Resources available include spare parts lists, technical notes, user manuals, video tutorials, updated application notes, and a complete collection of relevant scientific articles

GENERAL INFORMATION

- Dimensions: 545 (w) x 700 (d) x 680 (h) mm
- Weight: 82 Kg
- Power supply: 230 V, 50-60 Hz

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REACTION SENSORS

- **easyTEMP**: contact-less direct temperature control in all vessels up to 300°C
- **T1**: direct temperature monitor and control via shielded thermocouple or microwave-transparent fiber optic sensor up to 300°C in a reference vessel
- **P1**: direct pressure monitor and control up to 100 bar (ca.1500 psi) in a reference vessel
- **P2**: contact-less pressure monitor and control up to 100 bar (ca.1500 psi) in all vessels

PRESSURE VESSELS

- **MAXI-44**: high throughput rotor up to 44 PTFE-TFM-Teflon vessels, with a volume up to 100 mL. Maximum temperature 300°C, maximum pressure 35 bar (ca. 500 psi). Vent & Reseal technology for individual pressure control
- **MAXI-24 HP**: high throughput and high performance rotor up to 24 positions with PTFE-TFM-Teflon vessels, with a volume of 80 mL. Maximum temperature 300°C, maximum pressure 60 bar (C.a 900 psi). Vent & Reseal technology for individual pressure control
- **SK-15**: high pressure rotor up to 15 PTFE-TFM-Teflon vessels, with a volume up to 100 mL. Maximum temperature 300°C, maximum pressure 100 bar (ca. 1500 psi). Vent & Reseal technology for individual pressure control
- **SK-10**: up to 10 TFM-Teflon vessels, with a volume up to 100mL. Maximum temperature 300°C, maximum pressure 100 bar (1500 psi)
- **Versatility**: with the suitable selection of accessories, ETHOS can perform microwave solvent extraction, solvent-free extraction microwave evaporation/ concentration, microwave synthesis and fusion/ ashing within the same platform

STANDARD METHOD COMPLIANCE

- **US EPA 3052**: Microwave-assisted acid digestion of siliceous and organically based matrices
- **US EPA 3051A**: Microwave-assisted acid digestion of sediments, sludge, soils, and oils
- **US EPA 3015A**: Microwave-assisted acid leach of aqueous samples and extracts
- **US EPA 3546**: Microwave extraction of semi-volatile organic compounds, organophosphorus and organochlorine pesticides, chlorinated and phenoxyacid herbicides, substituted phenols, PCBs, and PCDDs/ PCDFs, which may then be analyzed by a variety of chromatographic procedures
- **ASTM D4309-96**: Standard practice for sample digestion using closed-vessel microwave heating technique for the determination of total metals in water
- **ASTM D-5765**: Standard Practice for solvent extraction of total petroleum hydrocarbons from soils and sediments using closed vessel microwave heating
- **ASTM D-6010**: Standard practice for closed vessel microwave solvent extraction of organic compounds from solid matrices
- **RoHS, WEEE** and **ELV** Suitable for RoHS (Restriction of the use of certain Hazardous Substances in electrical and electronic equipment), WEEE (Waste Electrical and Electronic Equipment) and ELV (End-of-Life Vehicles) sample preparation
- **ICH Q3D**, **USP <232>**,**<233>**: to be implemented respectively Dec, 2017 and Jan, 2018. EMA and ICH Q3D applicable for authorized drug products in the EU and Implementation of USP new chapter <232>/<233>