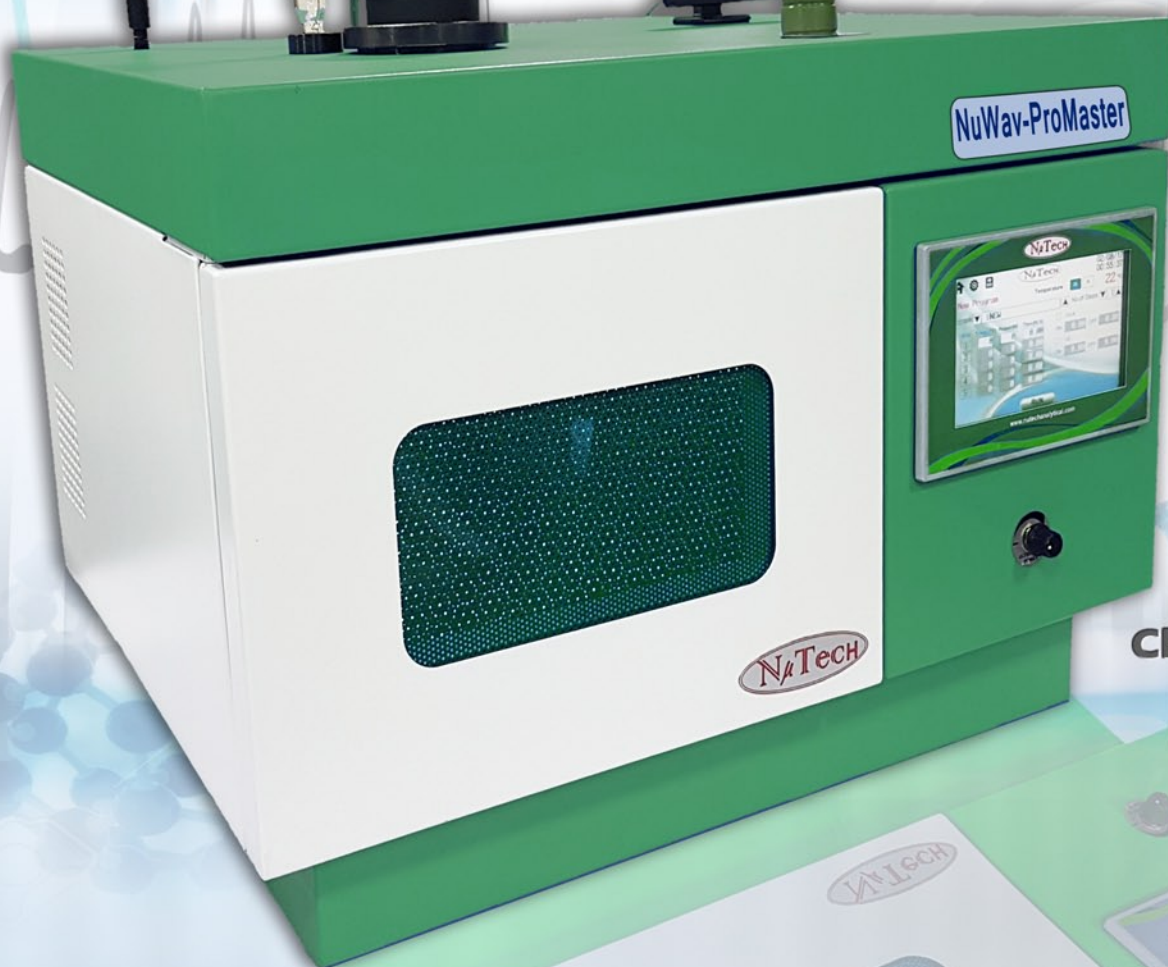


NuWav-ProMaster

Microwave-Ultraviolet-Ultrasonic
Synthesis/Extraction System
with Pressurised Reactor



**Now with
Explo-Protect
Chamber Security
Mechanism**

Over 30 Years of Cumulative Experience in Microwave Synthesis & Digestion
1st Synthesizer to be constructed COMPLETELY of Stainless Steel 316L
Unparalleled Precision and Control paired with Multiple Safety Parameters

Versatility of Open Vessel and Closed Vessel Synthesis in the same unit

Exclusively Innovated Explo-Protect Chamber Security Mechanism

Completely Constructed from Industrial Grade 316L Stainless Steel

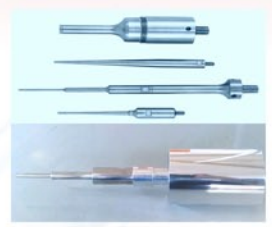
Microwave, Ultrasound and Ultraviolet energies can be used solo or in any combination

NuWav-ProMaster Microwave-Ultrasonic-Ultraviolet Synthesis/Extraction System with Pressurised Reactor, a sub-version of tradition, is a user-oriented practical compact Microwave Reactor made by **Nutech** with over 30-years of combined experience in Microwave Technology. Work effortlessly and hassle-free with the most advanced and precise Microwave-Synthesizer available. **NuWav-ProMaster** provides safety, unparalleled durability and convenience of operation yet assuring a plethora of customisable parameters.

- Full Industrial grade 316L Stainless Steel Construction
- Work with both Pressurised as well as open vessels
- New Intelli-System designed for virtually effortless operation
- Efficient and Precise power delivery for optimum results
- Open Vessel and Pressurised Synthesis combined workstation
- 7-inch Acid-Resistant Wide Format Touchscreen with integrated Graphical UI
- System provides Pre-Set Modes for the user's ease
- Real-time temperature, instantaneous power, stirring speed, total time, time remaining, UV status, US status, reaction graphs are displayed
- Modified PTFE Pressurised Vessel with Composite Fiber Jacket
- Safety/Security and overshoot warnings for the user
- Intelligent Internal Sensors for system safety monitoring
- Forced Air-Cooling System with unique exhaust design
- Dynamic adjustment of Microwave power based on reaction
- Non-pulsating and continuous heating controllable in 1Watt increments
- Optimised position of magnetron for low-trajectory Microwave introduction
- Ultra-Violet Reaction System with Status Display
- UV system can be programmed as well as switched manually
- Ultrasonic Reactor System with frequency and status display
- Ultrasonic System can be programmed as well as switched manually
- System provides the combination or solo usage of UV, US and Microwave
- High-precision German-Engineered IR temperature sensor
- Integrated Platinum(Pt) resistance temperature sensor
- User selectable IR or Pt100 sensor for temperature monitoring
- Piezoelectric Crystal Pressure Sensor
- High power Magnetic Stirrer with adjustable stirring speed
- Equipped with Reflux System
- Condensation and Circumfluence attachments available
- Integrated Inert Gas Purging System
- HD-Camera & External High-Resolution TFT for viewing reaction
- Reactions vessels available in Glass
- Reactions vessels available in Quartz(OPTIONAL)
- Vessel capacity ranging from 10ml to 1000ml(OPTIONAL ACCESSORIES)
- Wireless HD VIDEO LIVE STREAMING SYSTEM (OPTIONAL ACCESSORY)



The system dynamically adjusts microwave power based on reaction temperature to generate non-pulse and continuous heating with a minimum increment of 1 Watt. Optimised placement of the magnetron for low trajectory of microwave introduction ensures maximum efficiency heating. Microwave, Ultraviolet irradiation and Ultrasonic energy can be used conveniently by combining in any combination or separately. Usage of TFM vessel for Pressurised Synthesis is possible in the system. High Precision German Engineered IR sensor is used for precise monitoring and controlling of reaction temperature. Platinum (Pt) resistance temperature measurement is adapted for automatic recognition and intelligent control of temperature measurement mode and maximum temperature to meet the need of different reaction containers and media. User can select between the IR and Pt sensor for a given process. High Speed Magnetic stirring with adjustable Stirring speed and displaying. The Product is equipped with condensation, reflux and inert gas purging facility. HD camera is installed for the observation of the process and status of the reaction in the vessels via TFT colour liquid display.



Sturdy and Durable Industrial Grade Stainless Steel 316L construction of the whole Instrument Structure ensures no rust and a long lifespan of the NuWav-ProMaster without any maintenance. Professional Focused Microwave design provides for High Efficiency heating. Multi-layer chemical resistant colour coating of the whole instrument improves service life and safety of the system. The Explo-Protec Chamber Security Mechanism pops-up the door(4-12mm depending on the pressure), releases the pressure and pops back to its closed position in case of an explosion inside the reaction chamber thus providing a layer of safety to the user. Double Locked Self-Checking System and Push-Button Door release ensures simple and easy operation yet providing safety to the user. High Speed Air Cooling and Exhaust Systems achieves fast cooling and unparalleled exhaust, improving operational efficiency. The Pressurised Vessel has an Aerospace Grade composite fiber jacket to stay stable under high pressure.



Industry's 1st Intelli-System integrated in a 7-Inch Acid/Corrosion Resistant Touchscreen with a Graphical UI makes operating the NuWav-ProMaster effortless. The system provides Pre-Set modes and step-by-step guidance for the user's ease. All vital information such as Real-Time Temperature, UV System and Ultrasonicator System Status, Instantaneous Power Output, Safety Power / Temperature, Pressure, Max. Pressure, Hold time, Time Left, Total Elapsed Time, Process Name as well as Real-Time Temperature-Power, Pressure(in different colours and scale and are switchable) vs. Time Graph is displayed. Conversion of Conventional conditions to Microwave Synthesis parameters are provided in the system. Safety/security warnings (Door Ajar, Cooling and Exhaust System Fan Malfunctions and RPM), Process Completion are indicated to the user. The system enables the user to Synthesize as well as Digest samples. Both pressurised and open vessel reactions can be conducted. The software is interchangeable for Open Vessel Synthesis and Closed Vessel Synthesis respectively.



The Intelli-System's internal algorithm dynamically controls the Microwave Power based on Real-Time conditions thus eliminating any Temperature Overshoot. Non-Pulse Low-Trajectory Microwave Power is controllable in 1Watt increments. In case of any anomalies, the system warns the user and stops operating thus providing the user another layer of safety. Synthesis Programs can be saved, edited and sorted by Name/Date for later use, each program having up to 5 steps of inputs of Temperature, Power, Hold-Time as well as Safety Temperature, Safety Pressure, Safety Power Cut-Off and UV/US parameter inputs. The sensing, control capabilities and integrated safety parameters of the system makes the Intelli-System the most versatile and user friendly system which is way ahead of time.



Technical Specifications Of NuWav-ProMaster Microwave-Ultraviolet-Ultrasonic Synthesis/Extraction System with Pressurised Reactor

Microwave Frequency	2450 MHz
Installed Microwave Power	1800 Watt
Construction:	
External Structure	Industrial Grade 316L Stainless Steel
Internal Microwave Chamber	Industrial Grade 316L Stainless Steel
Maximum Output Power	1000 W, Non-Pulsed Continuous Automatic Variable Frequency Control with an increment of 1 Watt
Temperature Measurement and Control System	>High Precision German Engineered IR Sensor; Operating from 0°C to 300°C, Precision : +/- 1°C (Threshold Temperature is from Ambient to 350°C) >Piezoelectric Crystal Pressure Sensor; Range: 0-4 MPa >Platinum (Pt) Resistance Temperature Measurement is adapted for automatic recognition and intelligent control of temperature from 0°C to 300°C ; Precision: +/- 1°C (Threshold Temperature- Ambient to 350°C)
Monitoring	HD-Camera with External 4.3 inch TFT Display
Main-Display	Large (7") Wide-Format, High-Resolution(800 x 480) Acid-Resistant Touch Screen
Software	Versatile software to precisely control and adjust Microwave Power, Temperature, UV, US and Pressure. Real-time parameters such as Total Time, Stirring Speed, Instantaneous Temperature and Power, Pressure Etc. are displayed. Interchangeable Open Vessel & Closed Vessel Reaction Software. Temperature-Power-Pressure vs. Time Graphical representation Microwave, UV, US can be used in any combination.
User Interface	Icon based GUI. Graphical Output. Real Time Status Display. Easy Setup
Memory	Virtually Unlimited Process Storage
Safety	Intelligent Overheat Cut-Off. System cooling malfunction warning. Door ajar warning. (With Message and Buzzer)
Magnetic Stirring	High Speed Magnetic Stirrer with Adjustable Speed and RPM display
Exhaust system of chamber	Corrosion-Resistant motor, with Air rate of 3.8 m ³ /min
Integrated	System is equipped with Inert Gas Purging facility, Reflux and LED light
Pressure Vessel	Modified PTFE (TFM) 200ml with Jacket and Chamber
Flasks	Glass (50ml, 100ml, 250ml and 500ml) ; Quartz (100ml, 250ml)
Accessories	Reflux Condensing Pipe, Balance Dispenser, Oil-water Separator, Connectors, Stoppers, Stirring Beads, T-Stand, etc.
UV System	Ultraviolet Irradiation of 365nm / 300Watts
US System	Ultrasonic Probe with 6mm tip. 26kHz-28kHz frequency. 0-800 Watts
Working Environment Conditions	10°C - 50°C, Well Ventilated, Dust-Free Environment 15%-80% Humidity, Non-Condensing Microwave and Corrosion Shielded Components
Operating Voltage And Current	220/240 VAC, Non-Fluctuating Supply 110/120VAC(Optional) 50/60 Hz 15 Amp
Dimensions	655 mm x 510 mm x 455 mm (WxDxH)
Net Weight	56 Kgs

Optional Accessories :

Ultrasonicator Options	Variable size tips for Ultrasonicator (2mm to 25mm)
UV Options	Variable power and wavelength available
Pressure Vessel	100ml, 150ml Modified PTFE (TFM)
Glass Vessels	25ml, 100ml
Quartz Vessels	25ml, 50ml, 500ml, 1000ml
Wireless Video System	Wireless FHD Video Live Stream, Recording and Snapshot capabilities. Multiple device connectivity.

Our Other Products:

Microwave-UV-US Reactor

Microwave Digestion System

Microwave Synthesis System



NuWav-Pro



NuWav-Ultra



NuWav-Uno

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*Actual colour and design may vary.

Local Rep.:

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