

Laboratory Hydrothermal Synthesis Autoclave Reactor Ptfе Ppl Lined High Temperature High Pressure Explosion Proof Reaction Vessel

Item Number: PL-FY01



Introduction

Achieve precise material synthesis with this high pressure hydrothermal autoclave reactor featuring interchangeable PTFE or PPL liners. Engineered for laboratory safety and superior chemical resistance, it delivers highly reliable high temperature performance under the most demanding experimental research conditions.

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Application	Description	Key Benefit
Nanoparticle Synthesis	Anchoring metal oxide nanoparticles (such as ZnO) onto carbonaceous substrates (like reduced graphene oxide) at temperatures around 120°C.	Enhances photocatalytic and electronic properties of materials with precise heterojunction control.
Hydrothermal Crystallization	Growing single crystals and high-purity zeolites under sustained high-temperature and vapor-pressure conditions.	Ensures uniform crystal structures, high crystallinity, and minimizes structural defects.
High-Pressure Acid Digestion	Dissolving refractory inorganic samples, geological specimens, and organic matrices using strong acids (HF, HNO ₃) for trace element analysis.	Complete sample dissolution without loss of volatile trace elements or risk of external contamination.
Geochemical Simulation	Simulating deep-crustal geochemical reactions and mineral formation processes under elevated temperatures and pressures.	Replicates natural underground conditions with high precision for geological and mineralogical studies.
Hydrothermal Carbonization	Converting wet biomass and organic precursors into hydrochar and carbon materials under subcritical water conditions.	High carbon conversion efficiency with minimal greenhouse gas emissions and chemical additive requirements.
Polymer & Composite Aging	Subjecting advanced engineering polymers and composite materials to accelerated high-pressure, hot-water degradation tests.	Provides reliable data on material durability, hydrolysis resistance, and long-term structural lifetime.

Model Code	Lining Option	Chamber Capacity (mL)	Max Temperature (°C)	Max Pressure (MPa)	Heating/Cooling Rate	Outer Shell Material
PL-FY01-25T	PTFE	25	200	3.0	≤ 5 °C/min	SS304 / SS316
PL-FY01-50T	PTFE	50	200	3.0	≤ 5 °C/min	SS304 / SS316
PL-FY01-100T	PTFE	100	200	3.0	≤ 5 °C/min	SS304 / SS316
PL-FY01-200T	PTFE	200	200	3.0	≤ 5 °C/min	SS304 / SS316
PL-FY01-500T	PTFE	500	200	3.0	≤ 5 °C/min	SS304 / SS316
PL-FY01-25P	PPL	25	280	3.0	≤ 5 °C/min	SS304 / SS316
PL-FY01-50P	PPL	50	280	3.0	≤ 5 °C/min	SS304 / SS316
PL-FY01-100P	PPL	100	280	3.0	≤ 5 °C/min	SS304 / SS316
PL-FY01-200P	PPL	200	280	3.0	≤ 5 °C/min	SS304 / SS316
PL-FY01-500P	PPL	500	280	3.0	≤ 5 °C/min	SS304 / SS316