



ACS Material Equipment Series

PlasMil™ E-20L Plasma Vibratory Ball Mill

- | | |
|------|------------------------|
| I. | Product Overview |
| II. | Product Features |
| III. | Product Specifications |
| IV. | Applications |

Contact Information:

ACS Material, LLC

Address: 959 E Walnut St., Suite 100

Pasadena, CA 91106, USA

Phone: (866) 227-0656

Fax: (781) 518-0284

E-Mail: contact@acsmaterial.com

Revision: 092425

I. Product Overview

1) Main Unit



Photo of PlasMil™ E-20L Plasma Vibratory Ball Mill

II. Product Features

The PlasMil™ E-20L Plasma Vibratory Ball Mill introduces cold plasma generated by field discharge into a mechanically vibrated ball milling process. The high-energy non-equilibrium plasma formed inside the milling jar synergizes with mechanical ball milling. In this non-thermal plasma environment, material molecules are easily transformed into atomic and excited states, enabling recombination. This promotes powder refinement, alloying, activation, chemical reactions, and accelerates in-situ gas–solid reactions. As a result, milling efficiency is greatly improved, contamination is significantly reduced, and unique structures are formed, enhancing material properties.

This complete technical solution has been filed under PCT international patents in the United States, Japan, and European member states. The system has been delivered to over 80 universities, research institutes, and enterprises nationwide, including 8 academician-led teams and more than 100 scientific research groups.

Key Features

Cold Plasma System

- Intelligent control and safety systems
- Comprehensive safety protection

High-Energy Ball Milling System

- 20 L high-strength stainless steel milling jar with stainless steel or ZrO₂ ceramic media
- Transparent ceramic base and lid for process observation and demonstration

Jar Atmosphere Control

- Supports multiple gases: Air, N₂, NH₃, O₂, SO₂, CO₂, Ar
- Gas flow and pressure monitoring and control
- Sealed jar with real-time pressure display

Pressure Control & Power Distribution

- Stable pressure delivery to milling jar (50–300 Pa)
- Plasma system interlocked with pressure control
- Laboratory-compliant power distribution (380 V / 50 Hz)

Powder Collection System

- Two-stage dust collection: coarse + fine powder
- Airtight powder collection and transfer jars for air-free handling
- Water-cooled collection jar for enhanced protection

III. Product Specifications

Product Name	PlasMil™ E-20L Plasma Vibratory Ball Mill
SKU	EBP0E20L
Dimensions	2800 (L) × 900 (W) × 1550 (H) mm
Weight	1500 kg
Input Voltage	380 V
Rated Power	7.5 kW
Discharge Current	0-3 A
Number of Jars	1
Jar Volume	20 L
Maximum Acceleration	10 g

Operating Mode	Vibratory ball milling
Amplitude Range	6-10 mm
Single Batch Capacity	1-5 kg
Discharge Method	Vacuum discharge
Discharge Frequency	10–20 kHz
Motor Speed	900–1500 rpm
Feed Particle Size	≤ 10 mm
Noise Level	< 80 dB
Default Components	Main ball mill unit x 1, Ball milling jar (20L, stainless steel) x1, Observation plate for discharge jar (1.5L) x 1, Electrode rods (ceramic) x 3, User manual x 1, Certification of Conformity x 1, Tools x 1, Vacuum pump x1, Pneumatic powder conveying system x 1
Optional Components	Mill balls

IV. Application

- Lithium battery materials
- Fuel cell catalysts
- Hard alloy powders
- Metal-based compounds
- Ceramic materials

Disclaimer: ACS Material, LLC believes that the information in this Technical Data Sheet is accurate and represents the best and most current information available to us. ACS Material makes no representations or warranties either express or implied, regarding the suitability of the material for any purpose or the accuracy of the information contained within this document. Accordingly, ACS Material will not be responsible for damages resulting from use of or reliance upon this information.