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Global Power Supply for Arc Melting System Supply, Demand and Key Producers, 2026-2032

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Abstracts

The global Power Supply for Arc Melting System market size is expected to reach $ 12.83 million by 2032, rising at a market growth of 4.7% CAGR during the forecast period (2026-2032).

In 2025, global Power Supply for Arc Melting System production reached approximately 600 units with an average price of USD $15,000 per unit. This product is a dedicated high-current DC electrical subsystem used to ignite, stabilize and regulate the arc energy in vacuum or inert-atmosphere arc melting equipment. It occupies the power-control layer of manual arc melters, automatic arc melting systems, suction casting systems and glovebox-compatible metallurgical platforms. Unlike generic welding power supplies or industrial arc furnace transformers, it must support unstable arc-load conditions, rapid current adjustment, equipment interlocks, water-cooled cable interfaces and safe operation inside a sealed melting process. Typical commercial forms include embedded OEM modules, replacement units, retrofit packages and cabinet power subsystems. Its market value is tied to new arc-melter installations and the replacement or upgrading of installed laboratory and pilot systems.

Power Supplies for Arc Melting Systems should be treated as a narrow metallurgical equipment subsystem rather than as a broad industrial power-electronics market. The defining boundary is not simply high-current DC output, but proven suitability for vacuum or inert-gas arc melting, arc ignition, current stabilization, rapidly changing arc impedance, equipment interlocks and integration with water-cooled electrode circuits. This distinction excludes general welding machines, plasma cutting supplies and large electric arc furnace transformers, even when they share some electrical characteristics. 2) Demand expectations are linked to the installed base and new sales of laboratory and pilot arc melting systems. The main purchasing routes are embedded supply with a

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new furnace, factory replacement for aging units, retrofit to add higher current or digital control, and occasional customization for automatic or glovebox-integrated systems. Because the subsystem is usually hidden inside the complete furnace bill of materials, the visible market is smaller than the functional installed base. Growth should remain moderate, supported by alloy discovery, high-entropy alloy research, additive manufacturing feedstock development and reactive-metal processing, but constrained by long equipment life and the limited number of new arc melting systems installed each year. 3) The current supplier structure is dominated by arc melter manufacturers and specialist vacuum-furnace builders rather than independent merchant power-supply brands. Some companies disclose dedicated replacement power supplies as identifiable SKUs, while others disclose current rating only within complete furnace specifications. This creates two commercial layers: a strict standalone and replacement layer with clearer product identity, and a larger embedded OEM layer where the power supply is sold as part of the furnace. For market research, the embedded layer should be counted only when the power subsystem is technically identifiable and tied to a qualifying arc melting system. 4) Growth factors are mainly technical rather than volume-led. Higher current ratings support larger alloy buttons, suction casting and pilot-scale sample preparation. Digital control supports repeatable arc recipes, safer automatic operation and better integration with programmable arc melting platforms. Replacement demand is also driven by aging analog power units, certification requirements, serviceability and the need for stable current control under difficult arc conditions. At the same time, the product faces substitution risk from generic industrial power supplies in low-end systems and from alternative melting routes such as induction melting, levitation melting and vacuum arc remelting in adjacent applications. 5) The market position of this product is best framed as a reliability and control component. It is rarely the headline equipment purchase, but it directly affects arc stability, sample quality, operator safety and uptime. Future differentiation will likely come from compact high-current IGBT architectures, programmable current profiles, better fault diagnostics, safety-interlock integration, remote serviceability and compatibility with automatic multi-station arc melting systems.|

This report studies the global Power Supply for Arc Melting System production, demand, key manufacturers, and key regions.

This report is a detailed and comprehensive analysis of the world market for Power Supply for Arc Melting System and provides market size (US$ million) and Year-over-Year (YoY) Growth, considering 2025 as the base year. This report explores demand trends and competition, as well as details the characteristics of Power Supply for Arc Melting System that contribute to its increasing demand across many markets.

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Highlights and key features of the study
Global Power Supply for Arc Melting System total production and demand, 2021-2032, (Units)
Global Power Supply for Arc Melting System total production value, 2021-2032, (USD Million)
Global Power Supply for Arc Melting System production by region & country, production, value, CAGR, 2021-2032, (USD Million) & (Units), (based on production site)
Global Power Supply for Arc Melting System consumption by region & country, CAGR, 2021-2032 & (Units)
U.S. VS China: Power Supply for Arc Melting System domestic production, consumption, key domestic manufacturers and share
Global Power Supply for Arc Melting System production by manufacturer, production, price, value and market share 2021-2026, (USD Million) & (Units)
Global Power Supply for Arc Melting System production by Output Current, production, value, CAGR, 2021-2032, (USD Million) & (Units)
Global Power Supply for Arc Melting System production by Application, production, value, CAGR, 2021-2032, (USD Million) & (Units)

This report profiles key players in the global Power Supply for Arc Melting System market based on the following parameters - company overview, production, value, price, gross margin, product portfolio, geographical presence, and key developments. Key companies covered as a part of this study include MTI Corporation, Materials Research Furnaces, LLC, Thermal Technology LLC, Shenyang Kejing Auto-instrument Co., Ltd., Centorr Vacuum Industries, Diavac Limited, Zhengzhou CY Scientific Instrument Co., Ltd., Kakoki Co., Ltd. (Nippon Tokushu Kikai Co., Ltd.), Nissin Giken Co., Ltd., Edmund Buhler GmbH, etc.

This report also provides key insights about market drivers, restraints, opportunities, new product launches or approvals.

Stakeholders would have ease in decision-making through various strategy matrices used in analyzing the World Power Supply for Arc Melting System market

Detailed Segmentation:

Each section contains quantitative market data including market by value (US$ Millions), volume (production, consumption) & (Units) and average price (US$/Unit) by

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manufacturer, by Output Current, and by Application. Data is given for the years 2021-2032 by year with 2025 as the base year, 2026 as the estimate year, and 2027-2032 as the forecast year.

Global Power Supply for Arc Melting System Market, By Region:

- United States
- China
- Europe
- Japan
- South Korea
- ASEAN
- India
- Rest of World

Global Power Supply for Arc Melting System Market, Segmentation by Output Current:

- Up to 200 A
- Above 200 to 400 A
- Above 400 to 700 A
- Above 700 A

Global Power Supply for Arc Melting System Market, Segmentation by Control Architecture:

- Constant Current Control

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Pulsed Arc Control

Programmable Recipe Control

Microprocessor Control

Others

Global Power Supply for Arc Melting System Market, Segmentation by Integration Form:

Embedded OEM Module

Replacement Power Unit

Retrofit Power Package

Cabinet Power Subsystem

Others

Global Power Supply for Arc Melting System Market, Segmentation by Application:

Arc Melters

Vacuum Suction Casting Systems

Glovebox Arc Melting Platforms

Pilot Metallurgical Furnaces

Others

Companies Profiled:

MTI Corporation

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Materials Research Furnaces, LLC

Thermal Technology LLC

Shenyang Kejing Auto-instrument Co., Ltd.

Centorr Vacuum Industries

Diavac Limited

Zhengzhou CY Scientific Instrument Co., Ltd.

Kakoki Co., Ltd. (Nippon Tokushu Kikai Co., Ltd.)

Nissin Giken Co., Ltd.

Edmund Buhler GmbH

Key Questions Answered:
1. How big is the global Power Supply for Arc Melting System market?
2. What is the demand of the global Power Supply for Arc Melting System market?
3. What is the year over year growth of the global Power Supply for Arc Melting System market?
4. What is the production and production value of the global Power Supply for Arc Melting System market?
5. Who are the key producers in the global Power Supply for Arc Melting System market?
6. What are the growth factors driving the market demand?

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6 MARKET ANALYSIS BY CONTROL ARCHITECTURE

7 MARKET ANALYSIS BY INTEGRATION FORM

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