

Global R290 Explosion-proof Refrigerant Charging Equipment Market 2026 by Manufacturers, Regions, Type and Application, Forecast to 2032

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Abstracts

According to our (Global Info Research) latest study, the global R290 Explosion-proof Refrigerant Charging Equipment market size was valued at US\$ 111 million in 2025 and is forecast to a readjusted size of US\$ 202 million by 2032 with a CAGR of 8.4% during review period.

R290 explosion proof refrigerant charging equipment is specialized industrial equipment used in production lines for air conditioners, heat pumps, refrigerators, freezers and commercial refrigeration equipment. It is designed for R290 propane and other A3 highly flammable refrigerants to complete safe and accurate refrigerant charging during manufacturing. Main product forms include standalone explosion proof refrigerant charging machines, vacuum and charging integrated units, multi station automatic metering and charging stations, explosion proof refrigerant supply skid modules, flammable gas detection and interlock safety units, and line integrated explosion proof charging systems. The standard process integrates multi stage evacuation, pressure holding and leak testing, gravimetric or mass flow metering, accurate refrigerant transfer, residual gas recovery, forced workstation ventilation and purge, explosion proof electrical isolation, and full process safety interlock control. Key technical specifications include charging accuracy, charging rate, compatible refrigerant types, equipment explosion protection rating, flammable gas leak alarm threshold, ultimate vacuum level, production line cycle time, automation communication interface, and safety interlock shutdown response time. The core value of the equipment is to enable high precision, fully traceable and low explosion risk charging of flammable refrigerants under the transition toward low GWP refrigerants, and it is widely used in production lines for residential air conditioners, air source heat pumps, supermarket display cabinets and various commercial refrigeration equipment. In 2025, global shipments of

R290 explosion proof refrigerant charging equipment were approximately 3,450 units, the industry average selling price was about USD 31,000 per unit, and the industry average gross margin was about 38%.

R290 explosion proof refrigerant charging equipment is essentially a manufacturing safety upgrade driven by the transition toward low GWP refrigerants. The upstream supply chain consists of explosion proof electrical components, vacuum pumps, metering devices, weighing modules, valves, gas sensors, PLC control units and safety interlock components. The midstream includes equipment manufacturers and production line integrators, while downstream demand comes mainly from producers of air conditioners, heat pumps, refrigerators, freezers and commercial refrigeration equipment. Because R290 has a very low climate impact but belongs to the A3 flammable refrigerant category, the charging process requires controlled ventilation, leak detection, electrical isolation and automatic shutdown logic. This makes the equipment a dedicated safety and process control system rather than a conventional refrigerant charging machine. The competitive landscape is led by suppliers with long experience in refrigeration production equipment, safety engineering and automated charging systems. European and North American companies remain stronger in high end projects that require explosion protection, advanced process control, traceability and compliance documentation. Chinese manufacturers are gaining relevance in local production line upgrades, cost sensitive projects and faster service response, but many still need stronger evidence in international certification, long term operating records and global customer validation. The industry is also affected by regional supply chain adjustment, including changes in ownership of established equipment assets and the gradual localization of manufacturing and service capabilities in major appliance production regions. Policy pressure and end market technology transition are the main growth drivers. The phase down of high GWP fluorinated refrigerants, wider use of natural refrigerants in commercial refrigeration, and continued investment in efficient heat pumps and cooling equipment are encouraging manufacturers to add flammable refrigerant charging capability. Future demand will be supported by commercial display cabinets, light commercial refrigeration, heat pump production and selected air conditioning applications. However, the market will remain shaped by safety standards, refrigerant charge limits, installation practices and competition from alternative refrigerant routes. Overall, the industry should be viewed as a growing but specialized equipment segment with solid technical barriers, steady replacement demand and moderate long term expansion potential.

This report is a detailed and comprehensive analysis for global R290 Explosion-proof Refrigerant Charging Equipment market. Both quantitative and qualitative analyses are

presented by manufacturers, by region & country, by Type and by Application. As the market is constantly changing, this report explores the competition, supply and demand trends, as well as key factors that contribute to its changing demands across many markets. Company profiles and product examples of selected competitors, along with market share estimates of some of the selected leaders for the year 2025, are provided.

Key Features:

Global R290 Explosion-proof Refrigerant Charging Equipment market size and forecasts, in consumption value (\$ Million), sales quantity (Unit), and average selling prices (K US\$/Unit), 2021-2032

Global R290 Explosion-proof Refrigerant Charging Equipment market size and forecasts by region and country, in consumption value (\$ Million), sales quantity (Unit), and average selling prices (K US\$/Unit), 2021-2032

Global R290 Explosion-proof Refrigerant Charging Equipment market size and forecasts, by Type and by Application, in consumption value (\$ Million), sales quantity (Unit), and average selling prices (K US\$/Unit), 2021-2032

Global R290 Explosion-proof Refrigerant Charging Equipment market shares of main players, shipments in revenue (\$ Million), sales quantity (Unit), and ASP (K US\$/Unit), 2021-2026

The Primary Objectives in This Report Are:

To determine the size of the total market opportunity of global and key countries

To assess the growth potential for R290 Explosion-proof Refrigerant Charging Equipment

To forecast future growth in each product and end-use market

To assess competitive factors affecting the marketplace

This report profiles key players in the global R290 Explosion-proof Refrigerant Charging Equipment market based on the following parameters - company overview, sales quantity, revenue, price, gross margin, product portfolio, geographical presence, and

key developments. Key companies covered as a part of this study include AGRAMKOW Fluid Systems A/S, Galileo TP Process Equipment S.r.l., FT S.r.l., VTech Process Equipment LLC, Marposs S.p.A., Shanghai Schenck Machinery Co., Ltd., Fives Group, Nanjing Wanfolai Precision Machinery Co., Ltd., Cixi City Senda Refrigeration Technology Co., Ltd., ULVAC, Inc., etc.

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

Market Segmentation

R290 Explosion-proof Refrigerant Charging Equipment market is split by Type and by Application. For the period 2021-2032, the growth among segments provides accurate calculations and forecasts for consumption value by Type, and by Application in terms of volume and value. This analysis can help you expand your business by targeting qualified niche markets.

Market segment by Type

Standalone Explosion-proof Charging Machine

Automatic Charging Station

Refrigerant Supply and Metering Skid

Turnkey Explosion-proof Charging System

Others

Market segment by Charging and Metering Method

Gravimetric Charging

Mass Flow Metering Charging

Volumetric based Charging

Hybrid Metering Charging

Others

Market segment by Safety Protection Configuration

Basic Explosion-proof Configuration

Gas Detection and Interlock Configuration

Integrated Ventilation and Safety System

Others

Market segment by Application

Commercial Refrigeration Industry

Household Appliance Industry

Industrial and Specialty Cooling Industry

Others

Major players covered

AGRAMKOW Fluid Systems A/S

Galileo TP Process Equipment S.r.l.

FT S.r.l.

VTech Process Equipment LLC

Marposs S.p.A.

Shanghai Schenck Machinery Co., Ltd.

Fives Group

Nanjing Wanfolai Precision Machinery Co., Ltd.

Cixi City Senda Refrigeration Technology Co., Ltd.

ULVAC, Inc.

Qingdao Ouruinuo Electronic Technology Co., Ltd.

SIQ Inc.

Market segment by region, regional analysis covers

North America (United States, Canada, and Mexico)

Europe (Germany, France, United Kingdom, Russia, Italy, and Rest of Europe)

Asia-Pacific (China, Japan, Korea, India, Southeast Asia, and Australia)

South America (Brazil, Argentina, Colombia, and Rest of South America)

Middle East & Africa (Saudi Arabia, UAE, Egypt, South Africa, and Rest of Middle East & Africa)

The content of the study subjects, includes a total of 15 chapters:

Chapter 1, to describe R290 Explosion-proof Refrigerant Charging Equipment product scope, market overview, market estimation caveats and base year.

Chapter 2, to profile the top manufacturers of R290 Explosion-proof Refrigerant Charging Equipment, with price, sales quantity, revenue, and global market share of R290 Explosion-proof Refrigerant Charging Equipment from 2021 to 2026.

Chapter 3, the R290 Explosion-proof Refrigerant Charging Equipment

competitive situation, sales quantity, revenue, and global market share of top manufacturers are analyzed emphatically by landscape contrast.

Chapter 4, the R290 Explosion-proof Refrigerant Charging Equipment breakdown data are shown at the regional level, to show the sales quantity, consumption value, and growth by regions, from 2021 to 2032.

Chapter 5 and 6, to segment the sales by Type and by Application, with sales market share and growth rate by Type, by Application, from 2021 to 2032.

Chapter 7, 8, 9, 10 and 11, to break the sales data at the country level, with sales quantity, consumption value, and market share for key countries in the world, from 2021 to 2026. and R290 Explosion-proof Refrigerant Charging Equipment market forecast, by regions, by Type, and by Application, with sales and revenue, from 2027 to 2032.

Chapter 12, market dynamics, drivers, restraints, trends, and Porters Five Forces analysis.

Chapter 13, the key raw materials and key suppliers, and industry chain of R290 Explosion-proof Refrigerant Charging Equipment.

Chapter 14 and 15, to describe R290 Explosion-proof Refrigerant Charging Equipment sales channel, distributors, customers, research findings and conclusion.

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