

Global Cold Cathode (Penning) Vacuum Gauge Market Growth 2026-2032

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Abstracts

The global Cold Cathode (Penning) Vacuum Gauge market size is predicted to grow from US\$ 313 million in 2025 to US\$ 430 million in 2032; it is expected to grow at a CAGR of 4.3% from 2026 to 2032.

In 2025, global Cold Cathode (Penning) Vacuum Gauge production reached approximately 133 k units with an average global market price of around US\$ 2400 per unit, and a gross profit margin of approximately 20%-40%. Cold Cathode (Penning) Vacuum Gauges are ionization vacuum measurement devices used for high and ultra-high vacuum ranges. They create a discharge between electrodes in a magnetic field, ionizing residual gas molecules without a heated filament. The resulting ion current correlates with pressure, enabling measurement typically from about 10^{-2} to 10^{-7} mbar depending on design. Because there is no hot filament, Penning gauges offer long life and better tolerance to oxygen and sudden pressure bursts compared with hot cathode gauges. They are widely used in semiconductor vacuum tools, coating systems, accelerators, vacuum furnaces, and research chambers. Key requirements include stable ignition, low drift, contamination resistance, and compatibility with controllers and vacuum fittings.

The industrial chain of Cold Cathode (Penning) Vacuum Gauges includes upstream components such as stainless steel housings, ceramic insulators, permanent magnets, electrodes, seals (O-rings/metal gaskets), high-voltage power modules, signal conditioning electronics, connectors, and vacuum flanges. Midstream manufacturing covers precision machining, ceramic-to-metal sealing, electrode assembly, magnet alignment, leak testing, calibration, and burn-in. Downstream users include semiconductor equipment OEMs, vacuum system integrators, coating and heat-treatment plants, research labs, and industrial vacuum maintenance providers. Services

include calibration, controller integration, spare parts supply, and technical support.

United States market for Cold Cathode (Penning) Vacuum Gauge is estimated to increase from US\$ million in 2025 to US\$ million by 2032, at a CAGR of % from 2026 through 2032.

China market for Cold Cathode (Penning) Vacuum Gauge is estimated to increase from US\$ million in 2025 to US\$ million by 2032, at a CAGR of % from 2026 through 2032.

Europe market for Cold Cathode (Penning) Vacuum Gauge is estimated to increase from US\$ million in 2025 to US\$ million by 2032, at a CAGR of % from 2026 through 2032.

Global key Cold Cathode (Penning) Vacuum Gauge players cover Leybold, Pfeiffer Vacuum, INFICON, MKS Instruments, Edwards Vacuum, etc. In terms of revenue, the global two largest companies occupied for a share nearly % in 2025.

LP Information, Inc. (LPI) ' newest research report, the "Cold Cathode (Penning) Vacuum Gauge Industry Forecast" looks at past sales and reviews total world Cold Cathode (Penning) Vacuum Gauge sales in 2025, providing a comprehensive analysis by region and market sector of projected Cold Cathode (Penning) Vacuum Gauge sales for 2026 through 2032. With Cold Cathode (Penning) Vacuum Gauge sales broken down by region, market sector and sub-sector, this report provides a detailed analysis in US\$ millions of the world Cold Cathode (Penning) Vacuum Gauge industry.

This Insight Report provides a comprehensive analysis of the global Cold Cathode (Penning) Vacuum Gauge landscape and highlights key trends related to product segmentation, company formation, revenue, and market share, latest development, and M&A activity. This report also analyzes the strategies of leading global companies with a focus on Cold Cathode (Penning) Vacuum Gauge portfolios and capabilities, market entry strategies, market positions, and geographic footprints, to better understand these firms' unique position in an accelerating global Cold Cathode (Penning) Vacuum Gauge market.

This Insight Report evaluates the key market trends, drivers, and affecting factors shaping the global outlook for Cold Cathode (Penning) Vacuum Gauge and breaks down the forecast by Type, by Application, geography, and market size to highlight emerging pockets of opportunity. With a transparent methodology based on hundreds of

bottom-up qualitative and quantitative market inputs, this study forecast offers a highly nuanced view of the current state and future trajectory in the global Cold Cathode (Penning) Vacuum Gauge.

This report presents a comprehensive overview, market shares, and growth opportunities of Cold Cathode (Penning) Vacuum Gauge market by product type, application, key manufacturers and key regions and countries.

Segmentation by Type:

Analog Type

Digital Type

Others

Segmentation by Working Principle:

Active Type

Passive Type

Segmentation by Application:

Semiconductors

Scientific Research

Others

This report also splits the market by region:

Americas

United States

Canada

Mexico

Brazil

APAC

China

Japan

Korea

Southeast Asia

India

Australia

Europe

Germany

France

UK

Italy

Russia

Middle East & Africa

Egypt

South Africa

Israel

Turkey

GCC Countries

The below companies that are profiled have been selected based on inputs gathered from primary experts and analysing the company's coverage, product portfolio, its market penetration.

Leybold

Pfeiffer Vacuum

INFICON

MKS Instruments

Edwards Vacuum

Fredericks

ULVAC

KVC

JEOL

Ultrahivac

Thulir Vacuum Technologies

Thyracont Vacuum Instruments

HOMEYU

Aosong

GUOGUANG ELECTRIC

Chengdu Zhenghua Electronic Instrument

Shanghai Cixi Instruments

Key Questions Addressed in this Report

What is the 10-year outlook for the global Cold Cathode (Penning) Vacuum Gauge market?

What factors are driving Cold Cathode (Penning) Vacuum Gauge market growth, globally and by region?

Which technologies are poised for the fastest growth by market and region?

How do Cold Cathode (Penning) Vacuum Gauge market opportunities vary by end market size?

How does Cold Cathode (Penning) Vacuum Gauge break out by Type, by Application?

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