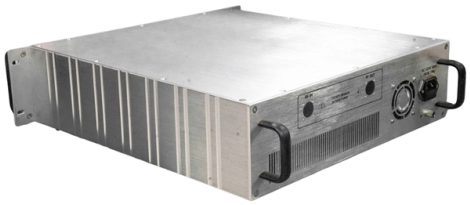
Price of Large-Scale Spectrometers



Overview

How much does a mass spectrometer cost? The typical price of a new mass spectrometer varies dramatically depending on the model.

Key Takeaways

Large spectrometers can range from $50,000 for basic models to over $1. 5 million for high-end, high-resolution systems.

Mass Spectrometer Pricing

The cost of mass spectrometers varies significantly depending on the type and performance specifications. Quadrupole mass spectrometers, suitable for routine analysis, typically cost $50,000 to $150,000. Time-of-flight (TOF) systems start around $200,000 and can exceed $500,000 for premium models.

Ion trap spectrometers range from $100,000 to $300,000, while Orbitrap systems are high-resolution instruments costing $400,000 to over $1,000,000. The most advanced Fourier transform ion cyclotron resonance (FT-ICR) spectrometers can exceed $1. 5 million, offering ultra-high precision for complex molecular analysis (Excedr).

Optical and Raman Spectrometers

Preconfigured optical and Raman spectrometer systems, often used for chemical, fluorescence, or display analysis, vary widely in price depending on wavelength range, resolution, and included accessories. For example, dual spectrometer systems with NIST-traceable calibration, fiber optic cables, and high-resolution detectors can cost tens of thousands to over $100,000, depending on configuration and sensitivity (Effemm2).

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Factors Affecting Cost

Resolution and sensitivity: Higher resolution and faster data acquisition increase price. System type: Mass spectrometers, Raman, and optical spectrometers have different base costs. Accessories and software: Fiber optics, calibration sources, and analysis software add to the total investment.

Operational costs: Consumables, maintenance, and service contracts can significantly increase long-term expenses.

Purchasing Options

Large spectrometers can be purchased directly from suppliers such as Farnell UK, Amazon, or specialized chemical analysis vendors, often requiring a quote for high-end systems (Farnell, ChemEurope). Leasing or financing options are also available for expensive instruments to manage upfront costs. In summary, budgeting for a large spectrometer requires considering both the base price and ongoing operational costs, with total investment ranging from $50,000 for entry-level systems to over $1.

5 million for top-tier research instruments.

Article Content

How Much Does a Mass Spectrometer Cost?

In this article, we discuss the various factors that influence the cost of a mass spectrometer and provide an overview of the types of prices you can

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Mass Spectrometer Cost – mLab Supply

This guide breaks down mass spectrometer pricing, system types, applications, ownership costs, and strategies to reduce capital expenditure without compromising analytical performance.

Advances in cost-effective integrated spectrometers

This review paper shows the market trend for chip-scale spectrometers and analyzes the key metrics that are required to adopt miniaturized spectrometers in real-life applications.

Mass Spectrometer Costs: How Much Should You Budget?

Large-scale data processing, essential for systems biology and translational research. While high-end mass spectrometers require significant investment, they are essential for labs

Advances in cost-effective integrated spectrometers

We expect to see expanding integration of chip-scale spectrometers into consumer productions within the next few years, providing cost-effective and reliable services to users worldwide.

Advances in cost-effective integrated spectrometers

By now, a wide variety of miniaturized spectrometers have been demonstrated, involving diverse architectures, working principles and material platforms, as well as varying technology

The Best Mass Spectrometers of 2026: Top Picks for Research,

Upgrade laboratory analysis with the best mass spectrometers of 2026. Explore top models for sensitivity, throughput, and precision from Thermo, SCIEX, and Bruker.

How Much Does a Mass Spectrometer Cost?

Reagent costs: Mass spectrometers use a variety of reagents, such as solvents and acids. These reagents can be expensive, and the cost can vary

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The Best NMR Spectrometers of 2026: A Buyer''s Guide

Discover the top-rated NMR spectrometers of 2026 for research and industry. Compare high-field and benchtop models to find the right fit for your lab.

Mass Spectrometer Costs: A Comprehensive Guide to Pricing

The Ultimate Guide to Mass Spectrometer Costs and Features When considering a mass spectrometer for your laboratory, the investment can be substantial. Understanding the cost,

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Moreover, chip-scale spectrometers are expected to play a leading role in rapid market expansion during the forecast period, owing to their high integrability into compact portable devices

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This document is for preliminary research. Verify specifications against current standards, product documentation and project requirements.

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