

Handheld Seamless Tube Elemental Spectrometer



Article Overview

A handheld seamless tube elemental spectrometer is a portable device designed for rapid, precise elemental analysis of metals and materials in the field or lab, using XRF or LIBS technology.

Overview

Handheld elemental spectrometers, often referred to as portable XRF (X-ray fluorescence) or LIBS (laser-induced breakdown spectroscopy) analyzers, are engineered for on-site, real-time elemental analysis. These devices are compact, lightweight, and rugged, allowing users to perform accurate compositional testing without the need for laboratory infrastructure.

Key Features

- **Portability and Design:** Most handheld spectrometers weigh between 1.5 kg and 2.75 lbs, with compact dimensions suitable for field use. They are designed to withstand harsh environments and extended duty cycles.
- **Detection Technology:** XRF analyzers use X-ray tubes (commonly 50–80 kV) and high-sensitivity detectors such as Si-PIN or SDD to identify elements from light (Mg, Al, Si) to heavy metals (Ag, W, Ta). LIBS analyzers employ laser pulses to detect lighter elements like lithium, beryllium, and carbon.
- **Performance:** These instruments provide lab-quality results in seconds, with automated beam switching, filter systems, and temperature-controlled detectors to...

Article Content

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Niton Portable Analyzer Models

Review the many models of Thermo Scientific Niton portable XRF and LIBS analyzers for elemental identification and metal verification.

Mar 31, 2026

TITAN Handheld XRF Analyzer | Bruker

TITAN: Power Over the Elements This high-performance handheld X-ray Fluorescence (XRF) gun makes ultra-fast, highly-accurate

Jan 09, 2026

Elemental Analysis with Handheld XRF Analyzers | Bruker

Elemental analysis with Bruker handheld XRF analyzers enables on-the-spot elemental analysis for high concentrations such as

Dec 18, 2025

Elemental Analyzers

Bruker manufactures instruments for elemental analysis from 100% down to the sub-ppb trace level. Easy

Sep 07, 2025

Handheld X-Ray Fluorescence Spectrometer (XRF)

A handheld X-ray fluorescence spectrometer (XRF) is a portable, non-destructive, rapid elemental analysis

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Elemental Analysis Solutions & Analytical Instruments | SPECTRO

SPECTRO is a global leading supplier of advanced analytical instruments like ICP, Arc Spark OES, and XRF spectrometers for

Jul 21, 2026

Handheld & Portable XRF

The S1 TITAN is among the lightest (1.5 kg, including battery) tube-based handheld XRF analyzers on the

Jul 06, 2026

Portable XRF Spectrometer 5000 – Handheld Alloy

The AELAB Portable XRF Spectrometer 5000 is a powerful handheld analyzer tailored for quick, accurate

Jul 08, 2026

Moving toward a Handheld “Plasma” Spectrometer for Elemental

Many of these components are already commercially available or at least have been reported in the literature.

Feb 01, 2026

Handheld XRF analyzers

In 2024, Malvern Panalytical acquired SciAps Inc., a leading provider of handheld XRF, LIBS analyzers, and NIR spectrometers. This

Feb 17, 2026

RFA-Handspektrometer | Bruker

Bruker's portable XRF solutions offer multi-element analysis with off-the-shelf or customized methods to

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Portable handheld spectrometers

The SciAps PowerHouse X is a portable benchtop XRF spectrometer that offers on-site elemental analysis. Its 80 kV X-ray tube

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Portable and Handheld XRF Analyzers | Evident Scientific

Evident handheld XRF analyzers are rugged and portable for fast and accurate elemental analysis where

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Moving toward a Handheld “Plasma” Spectrometer for Elemental

A successful “handheld” plasma atomic spectrometer may be achievable with current technology for many

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Elemental Analysis Using a Handheld X-Ray Fluorescence Spectrometer

The handheld instrument (fig. 2) uses a 4-watt X-ray tube and is powered by a 7.2-volt lithium-ion battery. Samples either can be

Oct 28, 2025

Handheld XRF Spectrometers for Elemental Analysis | Bruker

Handheld/Mobile/Portable XRF Spectrometers Handheld / portable X-ray fluorescent (XRF) analyzers have the capability to non

Oct 23, 2025

TITAN S1 Handheld XRF Spectrometer

Bruker Elemental is pleased to announce the introduction of two new options for the S1 TITAN Handheld XRF analyzer- an

May 26, 2026

The Future Of Elemental Testing Arrives: ESI H500B Handheld XRF ...

Recently, ESI launched the Handheld X-ray Fluorescence Spectrometer H500B, which, with its outstanding performance and wide

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RFA-Handspektrometer | Bruker

Handheld/Mobile/Portable XRF Spectrometers Handheld / portable X-ray fluorescent (XRF) analyzers have the capability to non

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Vanta Handheld XRF Analyzer | Evident | Evident Scientific

Instantly identify materials and their chemical composition from any location using the Vanta handheld XRF

Dec 24, 2025

Elemental Composition Analysis

When you need elemental composition analysis, you need a reliable, highly accurate analytical tool that is easy to use. Bruker XRF

Jun 08, 2026

TRACER 5 pXRF spectrometer | Bruker

TRACER 5 is the high value in-situ pXRF performer synchronizing power, function, precision and accuracy for dynamic, field capable

Aug 02, 2025

RFA-Handspektrometer | Röntgenfluoreszenz

RFA-Handspektrometer eignen sich für elementare und chemische Analysen eines breiten Spektrums von

Contact Us

For more information, pricing, or custom solutions, please contact us:

Website: <https://www.greatpremiersolutions.co.za>

Email: sales@greatpremiersolutions.co.za

Phone: +27 82 914 3675

Address: Unit 5, Silicon Heights, 22 Electron Avenue, Cape Town, 8001, South Africa

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