



HANDHELD XRF

Positive Material Identification

TITAN – Power over the elements for fast and confident alloy identification

In safety critical industries such as oil and gas, power generation, chemical processing, and metal fabrication, using the wrong alloy can lead to premature corrosion, mechanical failure, or catastrophic incidents. Incoming materials, welds, and installed components must be verified quickly and reliably against specifications, often directly in the field, under harsh conditions, and without damaging the part.

The TITAN handheld XRF analyzer enables fast and non-destructive Positive Material Identification (PMI) by determining the elemental composition of metal alloys directly on site. Within seconds, TITAN identifies the alloy grade and verifies compliance with material specifications without cutting, grinding, or sending samples to a laboratory.

With an intuitive touchscreen and smart workflows, TITAN is made for every operator. Accurate factory calibrations based on traceable standards provide dependable identification of alloys, including trace and tramp elements. By combining rapid results with a durable construction and efficient reporting, TITAN streamlines PMI workflows, minimizes downtime, and supports confident decision-making. Wherever quality and safety depend on material verification, TITANs power over the elements turns unpredictable conditions into actionable insights.

Key features and benefits

- State-of-the-art XRF engine for ultrafast metal identification
- Fast and stable light element performance in all conditions
- Designed for the factory floor with rugged, sealed, shock-resistant housing
- Advanced ingress protection and patented TITAN Detector Shield™
- Hot swappable battery and charge-in-device capability to maximize uptime
- Intuitive touchscreen with smart workflows and guided measurement
- Seamless documentation and connectivity via Wi-Fi, BT, USB-C, μSD, GPS

Alloy Verification

During maintenance of a high pressure piping system in a chemical plant, a refinery turnaround or offshore platform maintenance, technicians must verify the alloy grade of piping, flanges, and welds (e.g., stainless steel or high temperature Cr Mo steel).

Using the TITAN handheld XRF analyzer, each component can be measured in situ, providing fast and non-destructive PMI directly at the factory. The instrument instantly identifies the alloy grade and reports key elemental concentrations such as Cr, Ni, and Mo, allowing a direct verification against predefined specifications for corrosion resistance and high temperature performance.

This immediate verification helps prevent the installation or reuse of incorrect materials or mixed alloys, such as low alloy steels mistakenly installed in high-temperature zones, reducing the risk of premature failure and costly downtime and rework.

TITAN provides laboratory-grade measurement precision, as shown in the repeatability data in the table. Its rugged design, intuitive operation, and alloy-specific calibrations make it an ideal tool for routine PMI inspections in production, maintenance, and quality control environments – even under demanding industrial conditions.



TITAN analyzing a turbine blade

Intuitive user interface and predefined measurement workflows ensure speed and ease of use for all measurement tasks.



Analysis of Stainless Steel 316

Measurement	Concentration in %						
	Si	Cr	Mn	Fe	Ni	Cu	Mo
1	0.17	16.68	1.65	68.12	9.96	0.33	2.02
2	0.17	16.69	1.65	68.12	9.96	0.35	2.03
3	0.17	16.62	1.63	68.29	9.91	0.34	2.01
4	0.15	16.64	1.60	68.37	9.97	0.35	2.00
5	0.17	16.64	1.65	68.18	9.99	0.34	2.00
6	0.17	16.53	1.67	68.34	9.84	0.35	1.99
7	0.19	16.55	1.65	68.27	9.98	0.36	2.00
8	0.16	16.66	1.63	68.22	9.97	0.32	2.01
9	0.18	16.60	1.64	68.16	10.08	0.33	2.00
10	0.19	16.81	1.62	68.02	9.97	0.33	2.00
Average meas. value	0.171	16.642	1.641	68.209	9.963	0.34	2.006
Stand. deviation	0.011	0.079	0.021	0.111	0.059	0.013	0.012
Rel. standard deviation	6.53%	0.47%	1.29%	0.16%	0.59%	3.87%	0.59%

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