



# SPECTRO xSORT<sup>XHH03</sup>

HANDHELD XRF SPECTROMETER



Superior speed and accuracy  
for PMI testing — now with improved  
light element performance

The new measure of  
speed and productivity:

## SPECTRO xSORT

For refineries, power plants, and petrochemical complexes, positive material identification (PMI) plays a critical role in ensuring process integrity — as well as facility and personnel safety. Use of the wrong alloy or an off-spec grade of steel can lead to failures caused by flow-accelerated corrosion (FAC), sulfidation corrosion, or other threats to pipes, valves, or welds. The consequences can be catastrophic.

Operators must inspect huge volumes of structural materials from a wide range of suppliers with all possible speed and precision. Fortunately, the SPECTRO xSORT provides an ideal solution for PMI productivity challenges.



### THE SPECTRO xSORT HANDHELD X-RAY FLUORESCENCE (XRF) SPECTROMETER

furnishes high-throughput elemental testing and spectrochemical analysis of myriad materials in widely varying conditions. Its breakthrough speed, accuracy, and ease of use — now enhanced by improved analysis of light elements — make SPECTRO xSORT the essential tool for infrastructure integrity testing across multiple industries.

#### **FAST: THE ANSWERS YOU NEED IN SECONDS**

The SPECTRO xSORT Alloy model delivers grade identification in seconds. With the even more powerful SPECTRO xSORT AlloyPlus, most alloys can be analyzed in 2 seconds. For alloys containing difficult light elements such as aluminum, magnesium, silicon, phosphorus, and sulfur, metal grade identification now takes only 7 seconds!

#### **ACCURATE: TIMELY ANSWERS YOU CAN RELY ON**

SPECTRO xSORT AlloyPlus delivers highly dependable alloy identification with 3x to 5x greater precision than previous models — in only 2 seconds for most alloys, and in only 7 seconds (with 2x the precision) for alloys that include light elements. So plant personnel or contractors can complete hundreds of inspections per shift, boosting productivity and profitability.

#### **EASY: ANY METAL, ANY ALLOY, ANY TIME**

With SPECTRO xSORT, operators don't have to switch methods between samples, or bother with flushes or vacuum systems. Its compact, one-piece 1.64 kg (3.62 lb) design is optimized for easy use in the field, even in less accessible or tight spots.



# SPECTRO xSORT: advantages for PMI

X-ray safety gasket to prevent backscatter radiation from light element matrix samples

Optional integrated GPS receiver



Optional integrated video camera for precise spot testing, with visual memory storage

Si-PIN detector (on xSORT Alloy only) or high-resolution, high-sensitivity SDD

Easy-to-use wireless LAN to deliver results anywhere on network; users can view and manage results or collaborate remotely and archive the information

Quick-change battery

Low detection limits — down to ppm range for heavy metals and now even light elements

Interface bezel with operator-defined hot keys to maximize speed of common tasks

"Live" analysis results (display updated every few seconds)

Simplified software featuring touchscreen interface with only two menu levels — intuitive ease for highest productivity

SPECTRO iCAL one-sample, one-time automated standardization system



## SPECTRO xSORT Alloy

This entry-level model employs an innovative silicon PIN (Si-PIN) detector. Get grade identification of metals in seconds without extensive analysis.



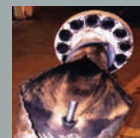
## SPECTRO xSORT AlloyPlus (Combi)

With its top-of-the-line silicon drift detector (SDD), this model provides reliable, high-productivity measurement and analysis.

Grade	Fe	C	Mn	P	S	Si	Cr	Ni	Cu	Al	Co	Mo	Ti	Tr	Other
304	100	0.02	0.03	0.01	0.01	0.01	18.0	10.0	0.01	0.01	0.01	0.01	0.01	0.01	0.01
316	100	0.02	0.03	0.01	0.01	0.01	16.0	10.0	0.01	0.01	0.01	0.01	0.01	0.01	0.01
321	100	0.02	0.03	0.01	0.01	0.01	18.0	10.0	0.01	0.01	0.01	0.01	0.01	0.01	0.01

## SPECTRO Metal Database

Exclusive optional SPECTRO Metal Database helps extend prepackaged libraries or to create customized grade libraries.



Corrosion by acidic production (photo courtesy of the Energy Institute, London)



General corrosion (photo courtesy of the Energy Institute, London)

## SPECTRO xSORT: SERVICE AND SUPPORT

So that SPECTRO xSORT instruments remain highly available, SPECTRO offers industry-leading AMECARE Performance Services. The program fields 200 service engineers in 50+ countries to help ensure optimum performance and the longest possible equipment life. Users can choose proactive performance maintenance, performance upgrades, application solutions, expert consultation, and targeted training.

**AMECARE**  
PERFORMANCE SERVICES



# SPECTRO xSORT Specifications



<b>Detector</b>	Si-PIN or high-resolution silicon drift detector (SDD)
<b>Excitation</b>	X-ray tube, rhodium anode, 50 kV max.
<b>Dimensions and weight (including battery pack)</b>	Height: 270 mm (10.7 in) Width: 93 mm (3.7 in) Depth: 230 mm (9.1 in) Weight: 1.64 kg (3.62 lb)
<b>Spectrometer control</b>	Integrated PC with touchscreen, Windows Mobile 6.0, Interfaces: Bluetooth, wireless LAN, USB host/client
<b>Software</b>	SPECTRO XRF Analyzer CE iCAL (intelligent calibration logic) Analysis mode with grade ID/grade verification option, sorting mode (fast pass/fail assessment) Result manager for post-processing of testing results
<b>Accessories (included)</b>	Transport case Instrument with battery Holster 2 <sup>nd</sup> battery pack Charger USB cable Consumables (films)
<b>Accessories (not included)</b>	Docking station Small parts/wire adapter Adapter for weld seams Printer Barcode reader
<b>Options</b>	Video camera (integrated) Internal GPS receiver

## Typical results obtained with SPECTRO xSORT AlloyPlus

1117 carbon steel			
Element	Measurement time: 2 Sec		
	Certified Value [%]	Average Value [%]	2*SD [%]
Mn	1.07	1.04	0.04
Cr	0.076	0.072	0.01
Ni	0.042	0.05	0.014
Mo	0.016	0.015	0.006
Cu	0.085	0.056	0.018

AISI 303			
Element	Measurement time: 7 Sec		
	Certified Value [%]	Average Value [%]	2*SD [%]
Si	0.63	0.8	0.10
Mn	1.87	1.72	0.031
S	0.38	0.30	0.024
Cr	17.35	17.8	0.07
Mo	0.58	0.59	0.015
Ni	8.64	8.69	0.085
V	0.11	0.08	0.02
Cu	0.51	0.46	0.029

AISI 321			
Element	Measurement time: 2 Sec		
	Certified Value [%]	Average Value [%]	2*SD [%]
Mn	1.52	1.2	0.061
Cr	17.45	17.6	0.11
Mo	0.36	0.38	0.018
Ni	9.42	9.5	0.064
Ti	0.63	0.67	0.036
V	0.13	0.11	0.02
Cu	0.30	0.20	0.019

## SPECTRO: AN EXTENSIVE RANGE OF ELEMENTAL ANALYSIS SOLUTIONS

The SPECTRO xSORT handheld XRF analyzer is an easy-to-use, highly reliable and accurate tool for PMI applications

SPECTROTEST is the mobile spectrometer to select if even more power and accuracy are needed, as when trace elements must be detected. Analyzing carbon and nitrogen, for example, lets SPECTROTEST distinguish L from non-L steel grades by their carbon levels, and identify duplex steels by their nitrogen content.

SPECTRO's stationary models include SPECTROCHECK, SPECTROMAXx, and SPECTROLAB models — as well as SPECTRO's top-of-the-line SPECTRO XEPOS XRF instrument. ICP-OES spectrometers include the SPECTRO ARCOS, SPECTROBLUE, and SPECTRO GENESIS analyzers.

Whatever the choice, SPECTRO's more than 30 years of experience in metals analysis and record of technological innovation ensure the best results in the business.

[www.spectro.com](http://www.spectro.com)



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▶ SPECTRO operates worldwide and is present in more than 50 countries. For SPECTRO near you, please visit [www.spectro.com/worldwide](http://www.spectro.com/worldwide)

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