

OXFORD

FOUNDRY-MASTER PRO

The first class laboratory optical emission spectrometer for complete professional metal analysis



The Business of Science®



OXFORD FOUNDRY-MASTER PRO

Engineered for high performance and reliability, the new **FOUNDRY-MASTER PRO**, with its innovative optical system and extended wavelength range, assures precise identification and trace analysis of important elements such as N in steel and P in aluminium.

Product highlights:

- Uncompromised analytical performance and reliability for production process control
 - Accurate and repeatable analysis including grade determination
 - Superior Low Carbon and Nitrogen measurement performance
 - Excellent long-term stability and minimum detection limits
 - Wide 130 nm – 800 nm wavelength range covers all elements
 - High-resolution Multi-CCD optics for optimal spectral line separation
 - Unique, proven Jet-Stream Technology ensures analysis accuracy on samples of all sizes and shapes
 - Editable Grade Identification library
- Solid and robust technology allows continuous use in any location, even in rugged conditions
- Easy to use, even for untrained operators
 - Easy-access advanced spark stand
 - Intuitive yet flexible Windows®-based user interface
 - External PC workstation incorporating the latest technology
- Vacuum optics means low argon consumption and minimal costs
- Minimal and cost effective maintenance



OES

Results can be displayed on screen, printed out or sent remotely to other devices

Ease-of-use and simplicity

The intuitive user interface and numerous customer-driven features make analysis work easy and simple. Just place the sample on the sample stand, start the measurement and read the result.

The **FOUNDRY-MASTER PRO** generates quantitative analyses of materials. The analysis results are displayed on screen and can be stored in an internal database for material validation purposes. The analysis data can also be exported to an external PC with productivity tools, which enables certificates to be easily created and printed.

The **FOUNDRY-MASTER PRO** comes with factory calibration based on available certified reference materials. In addition, the instrument's software allows the calibration and element ranges to be expanded using customer samples without difficulties. In this regard, even very specific calibration needs can be met.

Unique sample stand

A unique sample stand, proven Jet-Stream Technology and a superior plasma oscillator ensure straightforward and precise analysis of samples even with complex shapes and sizes – from large semi-finished products to small parts. Even wires as thin as 1 mm can be accurately measured using a single universal adapter.



- Spark stand deposits are minimised through optimised argon flows
- The sample stand is easy to maintain even during operation – only one window (indirect light path) and one lens (direct light path) to clean, with no need to touch the vacuum system



Sample adaptors



Vacuum lens assembly

Easy and simple analysis work

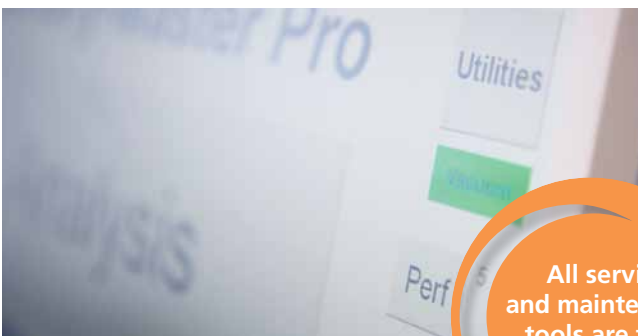
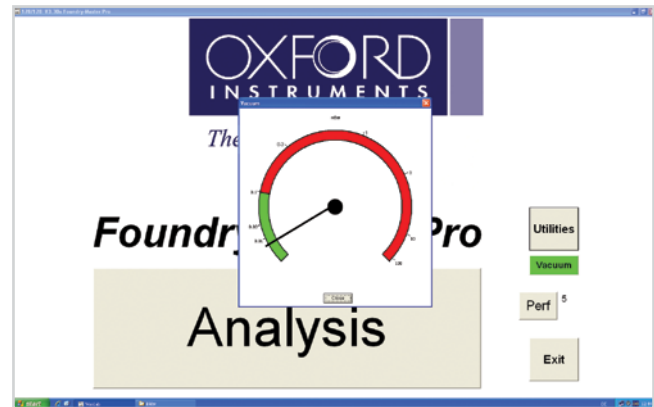


Keep organised

Intuitive, informative user interface

FOUNDRY-MASTER PRO's Windows®-based software makes it convenient and easy for the operator to perform both routine measurements and more demanding customer-specific test configurations. In addition, the user can monitor all important automatic control functions performed by the analyzer.

- Service and maintenance tools are fully integrated
 - Optical test routines
 - Hardware test routines
 - Remote access enabled
- Spectrum evaluation tool included
- Wavelength calibration provides ability to identify unknown peaks



All service and maintenance tools are fully integrated

Robust yet sophisticated vacuum system

- Efficient – allows measurements down to 130 nm
- Economical – no argon gas purge for optics
- Enhanced vacuum level check by optional gauge – results monitored by the software
- Edwards two-stage vacuum pump with oil and oil-mist filters



High performance, accuracy, reliability, flexibility and upgradeability

All in a single instrument



Advanced **FOUNDRY-MASTER PRO** software

Thanks to a unique WASLab and familiar Windows®-based software, any operator can routinely produce stable, reliable measurement results with the **FOUNDRY-MASTER PRO**.

The software is specifically designed to run on CCD spectrometers, and provides all of the functions required for calibration, standardisation, analysis, and reporting.

- Extensive calibration program
 - Matrix dilution calculation
 - Additive and multiplicative inter-element corrections
 - Automatic prompting for calibration and control samples
 - Automatic spectral line switching
 - Type standardisation
 - Global or partial standardisation
 - 1- or 2-point standardisation

Element	SD	RSD	Minimum	Maximum	Average
Fe %	0.148	0.2	67.9	68.4	68.1
C %	0.0014	6.2	0.0220	0.0260	0.0237
Si %	0.0113	2.4	0.455	0.494	0.473
Mn %	0.0094	0.6	1.64	1.67	1.65
P %	0.0004	1.8	0.0223	0.0236	0.0230
S %	0.0002	5.6	0.0043	0.0054	0.0048
Cr %	0.131	0.7	18.6	19.0	18.7
Mo %	0.0036	1.5	0.232	0.244	0.238
Ni %	0.0881	0.9	9.96	10.2	10.1
Al %	0.0009	14.7	0.0056	0.0087	0.0068
Co %	0.0008	0.6	0.147	0.150	0.149
Cu %	0.0032	1.6	0.194	0.202	0.198
Nb %	0.0015	21.0	0.0047	0.0056	0.00474
Ti %	0.0000	0.0	0.0010	0.0010	0.0010

Element	Spec 1	Spec 2	Spec 3	Spec 4	Spec 5	Spec 6	Spec 7	Spec 8	Spec 9	Spec 10	Spec 11	Spec 12	Spec 13	Spec 14	Spec 15	Average
Fe %	68.0	68.0	68.7	68.1	67.9	68.7	68.2	68.2	68.2	68.2	68.2	68.2	68.2	68.2	68.2	68.1
C %	0.0220	0.0216	0.0230	0.0219	0.0219	0.0220	0.0222	0.0226	0.0223	0.0227	0.0227	0.0227	0.0227	0.0227	0.0227	0.0227
Si %	0.473	0.474	0.468	0.474	0.471	0.476	0.481	0.484	0.477	0.484	0.477	0.484	0.477	0.484	0.477	0.473
Mn %	1.65	1.67	1.63	1.67	1.63	1.64	1.67	1.66	1.67	1.66	1.67	1.66	1.67	1.66	1.67	1.65
P %	0.0230	0.0216	0.0219	0.0214	0.0213	0.0213	0.0213	0.0213	0.0213	0.0213	0.0213	0.0213	0.0213	0.0213	0.0213	0.0230
S %	0.0043	0.0047	0.0043	0.0047	0.0043	0.0043	0.0043	0.0043	0.0043	0.0043	0.0043	0.0043	0.0043	0.0043	0.0043	0.0043
Cr %	18.6	18.7	18.4	18.8	18.8	18.6	18.7	18.8	18.7	18.8	18.7	18.8	18.7	18.8	18.7	18.7
Mo %	0.232	0.230	0.232	0.234	0.230	0.230	0.230	0.231	0.231	0.231	0.231	0.231	0.231	0.231	0.231	0.232
Ni %	9.96	10.2	10.1	10.1	10.0	10.2	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1
Al %	0.0056	0.0056	0.0056	0.0056	0.0056	0.0056	0.0056	0.0056	0.0056	0.0056	0.0056	0.0056	0.0056	0.0056	0.0056	0.0056
Co %	0.147	0.150	0.149	0.149	0.149	0.149	0.149	0.149	0.149	0.149	0.149	0.149	0.149	0.149	0.149	0.149
Cu %	0.194	0.202	0.198	0.198	0.198	0.198	0.198	0.198	0.198	0.198	0.198	0.198	0.198	0.198	0.198	0.198
Nb %	0.0047	0.0056	0.0047	0.0047	0.0047	0.0047	0.0047	0.0047	0.0047	0.0047	0.0047	0.0047	0.0047	0.0047	0.0047	0.0047
Ti %	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010

Results, reports and result processing options

Everything is at your fingertips:

- Results of concentrations, grade identifications, grade verifications, intensities, intensity ratios, standardised and corrected intensity ratios, reproducibility check during calibration and analysis
- Average, standard deviation and relative standard deviation on any number of burns
- Flagging of results beyond calibration range or out of material specs
- Automatic and/or user controlled printout and storage
- Display and/or printout and storage of complete sample spectrum
- Automatic transmission of results to remote devices
- Direct output of results to productivity tools such as word processors and spreadsheets
- Input and subsequent calculation of user defined formulae

The system of choice for metal manufacturers, processors and the foundry industry

We put the spark in spectroscopy

Proprietary detector and read-out technology developed specifically for spectroscopy applications makes **FOUNDRY-MASTER PRO** the system of choice for incoming and outgoing inspection in different metal processing companies.

State-of-the-art technology guarantees reliable operation and measurement results

The **FOUNDRY-MASTER PRO** uses the latest optical technology without compromise in element selection, concentration range, or the base metal to be checked. This is due to the use of CCD solid-state detectors.

The readout system of the high-resolution Multi-CCD Optics with up to 30,000 channels uses highly advanced electronics and software algorithms for perfect signal processing. Tests can be performed on all standard material grades and chemical elements.

The wavelength range, which starts from as low as 130 nm, enables the measurement of Nitrogen in steel. Using deep UV carbon lines improves C performance significantly. Other elements such as B, Pb, Sn or Sb also have well-defined, interesting lines in deep UV.

Typical Applications

- Analytical mode / identification
- Steel, cast iron and high alloyed steels
- Non-ferrous metals and their alloys
- Al: wrought alloys, casting alloys, etc.
- Cu: bronze, brass, cupronickel, etc.
- Mg, Zn alloys, solders
- Nitrogen in steel
- P in aluminium
- Ultra low carbon analysis
- Improved LOD's for Pb, Si, Sn, etc.
- Elements such as Se, La, Te, etc.

www.oxford-instruments.com/oes for more information

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