



**SPECIFICATION
FOR
HANDHELD XRF ANALYZER**

No: CFF/SFQC-21
Rev No.: 00
Date: 15/05/2017
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1.0. OBJECTIVE :

This technical specification covers the supply, installation & commissioning of Handheld X-Ray Florescence Analyzer for spectro chemical analysis complete with necessary auxiliary equipments & accessories.

2.0. TECHNICAL REQUIREMENTS:

- 2.1 Handheld XRF Analyzer shall be capable of identification of alloys with display of grade name / ID and quantitative chemical analysis of material.
- 2.2 Handheld XRF Analyzer shall be capable of analyzing the composition of Low alloy steels, High alloy steels, stainless steel, Slag, Cast Iron, Ferro-Alloys, refractories and Scraps.
- 2.3 Instrument shall be able to detect the alloy standard inclusive of light elements such as Mg, Al, Si, P, S, Sc, Ti, V, Cr, Mn, Fe, Co, Ni, Cu, Zn, Ge, As, Se, Sr, Y, Zr, Nb, Mo, Ru, Rh, Pd, Ag, Cd, In, Sn, Sb, Te, La, Ce, Pr, Nd, Hf, Ta, W, Re, Ir, Pt, Au, Pb, Bi, Th.
- 2.4 The Instrument should have Excitation source of X-ray tube with Rh anode of 4 watt power and 40KV minimum.
- 2.5 The Instrument should have detector either Silicon Pin Diode Detector (SiPIN) or high resolution Silicon drift detector (SDD) with resolution of 195eV or better.
- 2.6 The Instrument should have detector window 10mm² minimum with protection and capable to handle any type of damage against puncture and scratch.
- 2.7 The Instrument should have integrated color display with touch screen facility of 3.7 inch minimum. (No PDA type display accepted).
- 2.8 The instrument should be capable to test the sample for a temperature of 300 C maximum.
- 2.9 The equipment shall have camera of full VGA CMOS or better.
- 2.10 The equipment should have rechargeable Li-Ion battery with back up time of eight hours. The charger shall be supplied with the equipment. One spare rechargeable battery shall be supplied with equipment. The battery charger should work with single phase 220 V 50 Hz power supply.
- 2.11 The equipment should have internal memory of at least 2 GB along with scope for expandable storage. It should be able to store minimum 10000 readings with spectra.
- 2.12 The equipment should have calibration package for elements including all type specific calibrations for Stainless steels, tool steels, low alloy steels, nickel alloys, cobalt alloys, copper alloys, zinc alloys, light alloys, magnesium alloy, Aluminum alloys and general calibration for all other alloy types. The accuracy

Agreed Department			Quality Management		
SMS QC	J D Sahana		Prepared By	Arun K Agarwal	
SMS	M K Sahu		Checked By	K Chakraborty	
M & S	Abhishek Kr Garg		Approved By	V K Agarwal	



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of measured reading with respect to standard reading should not deviate three times of standard deviation .

- 2.13 The equipment should have embedded GPS and connectivity through Bluetooth & USB for data transfer to personal computer in Windows operating system.
- 2.14 Necessary Software shall be supplied with equipment to operate and a copy shall also be supplied in suitable storage media (Pen drive or External Hard disk).
- 2.15 The equipment should be capable to analyze a sample in minimum time but not more than 20 second.
- 2.16 The Instrument should have CE, IEC 61010-1:2002 and cTUVus certification.
- 2.17 The equipment shall follow all national and international safety norms.
- 2.18 Supplier shall provide necessary list along with detail specification of accessories for trouble free operation for five years and will quote separately.
- 2.19 The equipment shall be suitable packed to avoid any damage during transit. Necessary casing/carry box shall be provided to carry equipment for testing at different sites.
- 2.20 The equipment weight including battery should not exceed 2 kg .

3.0. GENERAL REQUIREMENTS:

- 3.1 Instrument shall be guaranteed for good working for at least two years from the date of commissioning. If the instrument remains out of order during this period, guarantee period will stand extended for double the corresponding period.
- 3.2 The equipment should be tropicalized for operating temperatures from - 5 °C to 50 °C, humidity 20-95 % (RH).
- 3.3 The equipment should be rated dust and water resistant to protect against the hazards.
- 3.4 Supplier should provide three sets of operation and maintenance manual in hard copies and also in digital form .
- 3.5 Training to be provided to BHEL personnel for operating & maintaining the equipment at our site.

Note : Please confirm each point of specification on Annexure I

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SMS QC	J D Sahana		Prepared By	Arun K Agarwal	<i>[Signature]</i>
SMS	M K Sahu	<i>[Signature]</i>	Checked By	K Chakraborty	<i>[Signature]</i>
M & S	Abhishek Kr Garg	<i>[Signature]</i>	Approved By	V K Agarwal	<i>[Signature]</i>

ANNEXURE 1

<u>Specification Cls No</u>	<u>Detail content</u>	<u>Confirmed /Not confirmed</u>	<u>Remark</u>
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(SIGNATURE)