

“Spectrometer”

Code No. _____

Qty. – 01.

S.No.	Description of Requirement	Required
	TECHNICAL SPECIFICATIONS FOR OPTICAL EMISSION SPECTROMETER	
1	Bidders are expected to provide clause wise compliance deviation statement to these technical specifications, failing which, bids will be rejected.	
	GENERAL	
1	Requirement is for a direct reading optical emission spectrometer working on arc-spark principles.	
2	Supply shall be complete with spectrometer consisting of optical chamber, vacuum system, source, read-out system, external computer, monitor and inkjet printer and supplied pre-calibrated for matrices and elemental ranges specified at Annexure-B along with a set of setting-up standards for each of the bases specified at Annexure-B	
3	Spectrometer shall be capable of analyzing solid metal samples with visual display of analysis on the monitor and hard copy on the printer.	
4	Floor standing spectrometer model is preferred. Vendors are requested to quote for floor standing models only.	
	OPTICAL SYSTEM	
1	Wavelength coverage minimum 130 -750 nm USING single optics	
2	Average Resolution of spectrometer shall not exceed 0.015 nm/pixel. Bidders to provide details of resolution of spectrometer in first order, reciprocal linear dispersion in first order, focal length of spectrometer and grating details.	
3	Detector units could be CCD based. Purchaser to detail type of detector used. vendor will provide a minimum of 14 CCDs within the optical system. Vendors to specifically confirm.	
4	Optical system as well as entire spectrometer system must be capable of addition of extra elements in existing bases or entire new bases at a later stage. Bidder to detail how this would be achieved on their spectrometer.	
5	The entire optical cell shall be under vacuum. Purged or inert gas sealed systems shall not be preferred. Vendors to specifically confirm this.	

	SPECTROSOURCE AND STAND	
1	Source parameters shall be computer controlled and shall use a digital plasma generator and shall be internally stabilized.	
2	Source parameters should be variable and User defined to match the metallurgy of samples under analysis.	
3	The source as a minimum shall have voltage parameters variable between 100- 500 V as a minimum and 100-500 Hz as a minimum with High Energy Pre-spark facility.	
4	Spark stand shall be open type (without cover) to accommodate larger sized samples.	
5	Stand shall be Argon purged and shall be air-cooled and provided with Universal adjustable sample clamp	
	READ-OUT SYSTEM	
1	The read-out system shall control,integrate and measure all spectrometer parameters.	
2	The read-out system shall use the latest Digital Signal Processing(DSP) techniques for simultaneous measurement of all analytical lines.	
	COMPUTER SYSTEM	
1	The computer system shall be the latest available in the market with the following minimum specifications:	
1.1	Dual Core processor	
1.2	2GB DDR 2 RAM	
1.3	Min. 250 GB hard disk	
1.4	3 USB ports	
1.5	One DVD RW	
1.6	17 Inch slim line TFT color monitor	
1.7	Inkjet printer with driver	
	SOFTWARE	
1	Working platform shall be either Windows 7 minimum. Vendor shall provide licensed version of the same.	
2	Operating software of the system should have as a minimum the following features:	
2.1	Type recalibration	
2.2	Global or partial recalibration of analytical programs(minimum 2 point method)	

2.3	Reproducibility check during recalibration and analysis	
2.4	Automatic request for recalibration of control samples	
2.5	Flagging of results beyond calibration range	
2.6	Input of user-defined sample identity codes	
2.7	Automatic and/or User controlled printout of analytical results and statistical data	
2.8	Free editable quality data base	
2.9	Quality check function	
2.10	Quality identification function	
2.11	Input and calculation of User defined formula	
2.12	Output of intensities,intensity ratios, recalibrated and corrected intensity ratios	
2.13	Two point standardisation,single standard standardisation not preferred	
2.14	Additive and multiplicative interelement correction	
2.15	Matrix correction	
2.16	Automatic switching of spectral lines	
2.17	Calculation of average,standard deviation and variation coefficient for unlimited number of burns	
2.18	Automatic hardware diagnostics	
2.19	Storage of complete spectral information for future evaluation	
2.20	Graphical display of spectra for qualitative analysis	
2.21	Large variety of output format options such as order of elements,free selection of elements to display/print/store,Selection of decimals	
2.22	Usage if customer based grade data bases, freely editable including grade search and Identification	
2.23	Diagnostics including Argon pressure watchdog, vacuum level watchdog, automated spectral drift control with log files, log files for standardization routine and error messages,visual display of complete spectra with store and compare functions.	
3	Purchaser shall have full access to the pre-calibration curves with possibility to modify the same at site. Such data shall be password protected.	
4	Software shall have facility to print either average or all analysis of a sample inputting sample ID etc along with calculated RSD/SD .	
5	Software shall be provided with in-built standards library with their certified values used to pre-calibrate the spectrometer. Such library should be capable of expansion for entering Customer supplied standards.	
6	Software shall have in-built grade identification facility with most of the common grades already available on the software. Such facility should also allow for modifications to existing grade sets for elements(changing	

	values and tolerances) as well as to add newer grades by the User at site	
7	The software shall have freely editable X-Y format for report generation allowing user to input other data related to analysis such as mechanical test reports on the same report.	
	PRE-CALIBRATION RANGES AND SUPPLY OF SETTING-UP STANDARDS	
1	Spectrometer shall be provided pre-calibrated for Fe, AL & Cu base as per analytical ranges defines at Annexure-B of these specifications. Bidders shall provide specific confirmation to this failing which their bids may be rejected.	
2	Bidders shall include setting-up standards for each base and specifically provide details of such standards included in their bids. Using one single standard for correction of each base is not preferred.	
3	Supplier shall provide the original intensity values of such supplied setting-up standards in the Customer binder ,without which the equipment shall not be accepted	
	SPARES/CONUSMABLE AND MAINTEANCE TOOLS	
1	Bidder shall include Two Years spares/consumable kit along with maintenance tool kit required for routine maintenance of the equipment in basic equipment cost. Bidder shall provide an itemized list of the same.	
	OPTIONAL /ADDITIONAL ACCESSORIES	
1	Bidders shall offer the following minimum optional/additional accessories for final selection by Purchaser	
2	Extra cost for addition of Copper and Tin base with global pre-calibration to be supplied along with a set of setting-up standards PER BASE.	
3	Wire sample adapter kit for measurement of small sized wires from 3 mm upwards shall be included in the basic cost of the instruments along with special calibration for LAS/SS wires. Bidders to specifically confirm this.	
4	Bidder shall offer in-line UPS of requisite capacity for the spectrometer/computer system with a minimum of fifteen minutes battery back-up in the basic cost of the instrument.	
5	High speed (minimum 1400 rpm) single disk bench top polishing machine with a minimum of 50 polishing papers to be included in the basic cost of the instrument.	
6	If any Argon gas purifier is required to meet the analytical program at Annexure-B, Bidder shall include the same in then basic cost of the spectrometer. Purchaser shall provide UHP Grade Argon (Argon Grade I).	
7	Such gas purifiers shall be of Sir cal make and shall be supplied with one set of spare tubes.	

8	Dual Stage Argon regulator along with two filled Argon cylinders to be included in the basic cost of the instrument	
	COMMISSIONING OF SPECTROMETER AND TRAINING OF PURCHASER'S PERSONNEL	
1	Bidders shall include commissioning of the spectrometer and proving out tests at site and Purchaser shall arrange for their own primary standards for conducting such results.	
2	Vendor shall train a minimum of Three of the Purchaser's personnel at site for a period of a minimum of Two working days on the routine analysis, standardisation procedures and routine maintenance of the spectrometer.	
	A. DOCUMENTATION	
1	Vendor shall provide one soft copy of the manual on CD and one hard copies of the O & M/software manual along with the consignment.	
2	Vendor shall inform Purchaser within two weeks of placement of order all installation guidelines and items required to complete the installation/commissioning of the instrument.	

DELIVERY PERIOD INCLUDING INSTALLATION & COMMISSIONING:

The delivery period including installation & commissioning of all of the machines at the destination mentioned in Para 1 on page no. 02 of the tender documents will be _____ months from the date of placement of Purchase Order/work contract.

WARRANTY:

The Entire machine inclusive of all system/accessories should be covered under warranty for a period of 24 months from the date of commissioning.

Note:

1. Machine shall be supplied with 3 sets of comprehensive operation and maintenance manual.
2. Breakdown calls to be attended within 48 hrs.
3. Supply to be done on Turnkey Basis. ALIMCO shall provide electrical supply point near to the place of installation.
4. Civil foundation details and drawings with specifications to be provided by the tenderer.
5. Total power consumption (in KW) to be provided by the tenderer.
6. CAD/CAM solution to be provided by the tenderer.