



CSIR-NATIONAL METALLURGICAL LABORATORY

[COUNCIL OF SCIENTIFIC & INDUSTRIAL RESEARCH, CSIR]

BURMA MINES, JAMSHEDPUR, JHARKHAND - 831007

Ph.: 0657-2345132, website: <http://www.nml.res.in> E-mail: spo.nml@csir.res.in

PURCHASE ORDER

To, ACCELOR MICROSYSTEMS F-451, INDUSTRIAL FOCAL POINT, SECTOR – 74, PHASE – 8B, SAS NAGAR (MOHALI), PUNJAB – 160055 GST No. – 03AWNPS2671N1ZX	P.O. No.	PUR/660/AKP/DB/2025-26
	Date	02.06.2026
	Subject	Award of Contract
	Ref.:-	1. NML Enquiry No. PUR/660/AKP/DB/2025-26 dt. 13.01.2026 2. Tender floated on GeM-CPP Portal bearing Tender ID :- 2026_CSIR_263052_1 3. Quotation Ref. No. ACC/ADMIN/ER/26/158 dt. 16.02.2026 and email dt. 06.05.2026.

Dear Sir,

I am directed to inform you that after evaluating the bid documents submitted by you as referred above, The Director, CSIR-NML, Jamshedpur has been pleased to inform you that you have been selected as the successful bidder for the **SUPPLY, INSTALLATION & COMMISSIONING OF MAGNETOSTRICTIVE SENSING DEVICE FOR PIPE INSPECTION : MAGSTRICS**. The total purchase price shall be ₹ **39,86,040.00**, as indicated in your financial bid submitted on the GeM-CPP Portal, in accordance with the procedures intimated in the relevant bid documents.

Accordingly, you are requested to kindly arrange for execution of the Contract for **SUPPLY, INSTALLATION & COMMISSIONING OF MAGNETOSTRICTIVE SENSING DEVICE FOR PIPE INSPECTION : MAGSTRICS**. Please apply for refund of EMD if deposited by you with proper documentary evidence.

TOTAL CONTRACT VALUE

Sl. No.	Description	Unit price	Quantity	Total Price
1.	"Magnetostrictive Sensing Device for Pipe Inspection : MagStrics" (Specifications as attached at Annexure-A)	₹ 16,89,000.00	2 Nos.	₹ 33,78,000.00
2.	GST on Item	₹ 3,04,020.00	2 Nos.	₹ 6,08,040.00
Sub-Total				INR 39,86,040.00
Inland Transportation and Insurance Charges				Included
Installation, Commissioning and Training Charges				Included
Total F.O.R price up to CSIR-NML Jamshedpur including all charges towards incidental services				₹ 39,86,040.00

This Contract/Purchase Order shall be governed by:-

- (1) General Conditions of Contract and Special Conditions of Contract as detailed in the **Bid Document Ref. No. PUR/660/AKP/DB/2025-26 dt. 13.01.2026 floated on CPP Portal bearing Tender ID :- 2026_CSIR_263052_1** and
- (2) Special Conditions of Contract enclosed with this Purchase Order.

The Technical Specifications and other allied features of the ordered goods shall strictly conform to those specified in the aforesaid CSIR-NML Tender Document and complied by the Bidder / Supplier in their Quotation submitted on GeM-CPP Portal and all communications exchanged between CSIR-NML and the Bidder / Supplier.

The Order Acknowledgement must be submitted immediately and in any case, within 07 days from the date of placement of this Purchase Order. The Order Acknowledgement shall be made on letterhead of the firm mentioning detailed technical specifications as per the Purchase Order and shall also contains declaration towards acceptance of all the terms & conditions of the Purchase Order.

Sd/-

Stores & Purchase Officer

For & on behalf of the Council of Scientific & Industrial Research

Explanations

The following words and expressions used in this Award of Contract shall have the meanings hereby assigned to them:

Purchaser	means CSIR-NATIONAL METALLURGICAL LABORATORY, BURMA MINES, JAMSHEDPUR, JHARKHAND - 831007
Manufacturer/Supplier	Means Accelor Microsystems, Punjab
Indian Agent	--

1.	Delivery Term	FOR NML Jamshedpur (Door delivery at Warehouse, CSIR-NML, Jamshedpur)
2.	Purchase Order Value / Contract Price	₹ 39,86,040.00 (INR THIRTY NINE LAKHS EIGHTY SIX THOUSAND FORTY ONLY)
3.	Transportation / Despatch	The ordered goods shall be delivered by Supplier at Warehouse of CSIR-NML, Jamshedpur and duly insured by Supplier on warehouse to warehouse basis covering all the risks including SRCC.
4.	Payment	<p>Payment shall be made in currency of the Contract in the following manner:</p> <p>Hundred percent (100%) of the Contract Price of Goods received shall be paid by RTGS within thirty (30) days of successful installation, commissioning and training of the items and acceptance certificate issued by user and submission of performance security.</p> <p>Release of payment subject to submission of Performance Security/PBG as per PO after verification from the PBG issuing Bank.</p>
5.	Banking Charges	All bank charges abroad shall be to the account of the beneficiary i.e. supplier and all bank charges in India shall be to the account of the purchaser.
6.	Performance Security	The Supplier shall furnish Performance Security for 3% of the contract price, i.e. ₹ 1,19,581.00 before claiming payment. Other details of Performance Security are detailed at GCC Clause 2.13 of our tender document.
7.	Country of Origin	India
8.	Port of Shipment	India
9.	Road Permit / eWaybill	Will not be provided.
10.	Pre-Dispatch Inspection (PDI)	Not Applicable.
11.	Delivery period	<p>03 (THREE) MONTHS from date of issue of Purchase Order.</p> <p>At the time of taking delivery of the ordered goods, Purchaser reserves the right to ask for a joint inspection in presence of Supplier's representatives for verification of the goods delivered.</p> <p>Denial Clause (over and above levy of Liquidated Damage): any increase in statutory duties and / or upward rise in prices due to the PVC (Price Variation Clause) clause and / or any adverse fluctuation in foreign exchange are to be borne by the seller during the extended delivery period, while the purchaser reserves the right to get any benefit of a downward revisions in statutory duties, PVC and foreign exchange rate.</p> <p>Except as provided under the Force Majeure clause, a delay by the Supplier in the performance of its delivery obligations shall render the Supplier liable to the imposition of penalty pursuant to Penalty Clause unless an extension of time is agreed upon pursuant to above clause without the application of penalty clause.</p>

12.	Warranty	01 (ONE) Year on-site Comprehensive Warranty from the date of completion of successful installation & commissioning and completion of all contractual obligation to the entire satisfaction of buyer.
13.	AMC	NOT APPLICABLE.
14.	Installation & Commissioning	<p>The vendor will complete the installation & commissioning including demonstration & training within 30 DAYS from the date of supply of equipment to CSIR-NML.</p> <p>Firm must submit copy of Installation Certificate on Supplier's letterhead duly signed & stamped by both the firm's engineer and user of CSIR-NML indicating specific start date and completion date of Installation. The firm must also submit Acceptance Certificate Form (Attached) on completion of commissioning of the items.</p> <p>Delay beyond the prescribed period in completion of contractual obligations will attract the imposition of Liquidated Damage Clause as mentioned in this tender document.</p>
15.	Training	It should be imparted for Two (02) person(s) for Two (02) day(s) to the purchaser at purchaser's premises. It should be completed within the 30 days from the date of supply of equipment to CSIR-NML.
16.	Acceptance	Supply of goods as per PO.
17.	LD Clause	It will be applicable for delay in delivery / shipment , installation, testing, commissioning and completion of all contractual obligations beyond deadlines as mentioned in our Bid Document GCC 2.27 read with the relevant SCC.
18.	Certificate for effecting payment	Firm will submit the installation and acceptance certificate indicating the completion of Installation, Commissioning & Training as well as duly signed by the user of CSIR-NML alongwith Invoice for effecting the payment.

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SPECIAL CONDITIONS OF CONTRACT (SCC)

The following Special Conditions of Contract (SCC) shall supplement and / or amend the General Conditions of Contract (GCC). Whenever there is a conflict, the provisions herein shall prevail over those in the GCC.

SCC 1.	The Purchaser is: Director, CSIR-NATIONAL METALLURGICAL LABORATORY, BURMA MINES, JAMSHEDPUR, JHARKHAND - 831007
SCC 2.	The Supplier is: M/s. Accelor Microsystems, Punjab
SCC 3.	Final Destination: CSIR-NATIONAL METALLURGICAL LABORATORY, BURMA MINES, JAMSHEDPUR, JHARKHAND - 831007
SCC 4.	Order Acknowledgement/Confirmation: The Order Acknowledgement must be submitted immediately and in any case, within 07 days from the date of placement of this Purchase Order. The Order Acknowledgement shall be made on letterhead of the firm mentioning detailed technical specifications as per Quotation and shall also contains declaration towards acceptance of all the terms & conditions of the Purchase Order.
SCC 5.	Performance Security: The Supplier shall furnish Performance Security for 3% of the contract price , i.e. ₹ 1,19,581.00 before claiming payment of the equipment. Other details of Performance Security are detailed at GCC Clause 2.13 of our tender document.
SCC 6.	Delivery / Shipment : 3 (THREE) MONTHS from date of issue of Purchase Order. Denial Clause (over and above levy of Liquidated Damage): any increase in statutory duties and / or upward rise in prices due to the PVC (Price Variation Clause) clause and / or any adverse fluctuation in foreign exchange are to be borne by the seller during the extended delivery period, while the purchaser reserves the right to get any benefit of a downward revisions in statutory duties, PVC and foreign exchange rate. Except as provided under the Force Majeure clause, a delay by the Supplier in the performance of its delivery obligations shall render the Supplier liable to the imposition of penalty pursuant to Penalty Clause unless an extension of time is agreed upon pursuant to above clause without the application of penalty clause.
SCC 7.	Part supply will not be accepted.
SCC 8.	The country of origin of the Goods is India.
SCC 9.	The port of shipment of the Goods is India.
SCC 10.	The mode of shipment: Road
SCC 11.	Installation & Commissioning: The vendor will complete the installation & commissioning including demonstration & training within 30 DAYS from the date of supply of equipment to CSIR-NML. Firm must submit copy of Installation Certificate on Supplier's letterhead duly signed & stamped by both the firm's engineer and user of CSIR-NML indicating specific start date and completion date of Installation. The firm must also submit Acceptance Certificate Form (Attached) on completion of commissioning of the items. Delay beyond the prescribed period in completion of contractual obligations will attract the imposition of Liquidated Damage Clause as mentioned in this tender document.
SCC 12.	Training: It should be imparted for Two (02) person(s) for Two (02) day(s) to the purchaser at purchaser's premises. It should be completed within the 30 days from the date of supply of equipment to CSIR-NML.
SCC 13.	Inspection and Tests:- The Inspection tests prior to shipment of goods and at final acceptance at buyer's site.

	<p>After the goods are manufactured and assembled, inspection and testing of the goods shall be carried out at the Supplier's plant by the Supplier prior to shipment to check whether the goods are in conformity with the technical specifications.</p> <p>Manufacturers Test Certificate with data sheet shall be issued to the effect and submit alongwith delivery documents.</p> <p>The acceptance test will be conducted by the Purchaser, their consultant or other such person nominated by the Purchaser at its option after the equipment is installed at Purchaser's site in the presence of supplier's representatives. The acceptance will involve trouble free operation. There shall not be any additional charges for carrying out acceptance test. No malfunction, partial or complete failure of any part of the equipment is expected to occur. The Supplier shall maintain necessary log in respect of the result of the test to establish to the entire satisfaction of the Purchaser, the successful completion of the test specified. In the event of the ordered item failing to pass the acceptance test, a period not exceeding two weeks will be given to rectify the defects and clear the acceptance test, failing which, the Purchaser reserve the right to get the equipment replaced by the Supplier at no extra cost to the Purchaser. Successful conduct and conclusion of the acceptance test for the installed goods and equipment shall also be the responsibility and at the cost of the Supplier.</p> <p>Before the goods and equipment are taken over by the Purchaser, the Supplier shall supply operation and maintenance Manuals together with Drawings of the goods and equipment built. These shall be in such details as will enable the Purchase to operate, maintain, adjust and repair all parts of the works as stated in the specifications. The Manuals and Drawings shall be in the ruling language (English) and in such form and numbers as stated in the Contract. Unless and otherwise agreed, the goods and equipment shall not be considered to be completed for the purposes of taking over until such Manuals and Drawing have been supplied to the Purchaser.</p> <p>On successful completion of acceptability test, receipt of deliverables, etc. and after the Purchaser is satisfied with the working of the equipment, the acceptance certificate signed by the Supplier and the representative of the Purchaser will be issued. The date on which such certificate is signed shall be deemed to be the date of successful commissioning of the equipment.</p>
SCC 14.	Packing: Please refer to Special Conditions of Contract (SCC) of our tender document.
SCC 15.	Shipping and other Documents : Please refer to Special Conditions of Contract (SCC) of our tender document.
SCC 16.	Mode of dispatch: In case of supplies from within India, the mode of transportation shall be by Road. In case of supplies from abroad, the mode of transportation shall be by Sea.
SCC 17.	Insurance: The Insurance in respect of goods to cover all risks including SRCC upto final destination shall be borne by Supplier at its own costs.
SCC 18.	Warranty: 01 (ONE) Year on-site Comprehensive Warranty from the date of completion of successful installation & commissioning and completion of all contractual obligation to the entire satisfaction of buyer. Other details of Warranty are detailed at GCC Clause 2.21 of our tender document read with relevant SCC.
SCC 19.	Payment: <u>Payment shall be made in currency of the Contract in the following manner:</u> Hundred percent (100%) of the Contract Price of Goods received shall be paid by RTGS within thirty (30) days of successful installation, commissioning and training of the items and acceptance certificate issued by user and submission of performance security. Release of payment subject to submission of Performance Security/PBG as per PO after verification

	from the PBG issuing Bank.
SCC 20.	Liquidated Damages : Please refer to our tender document under GCC 2.27 read with the relevant SCC.

BIDDER / SUPPLIER MUST REFER TO ALL CORRESPONDENCES / COMMUNICATIONS EXCHANGED BETWEEN BIDDER AND CSIR-NML WHICH SHALL FORM A PART OF THE CONTRACT.

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For & on behalf of the Council of Scientific & Industrial Research

**Technical Specification for
“Magnetostrictive Sensing Device for Pipe Inspection : MagStrics”**

1. Introduction

The magnetostrictive sensor (MsS) is widely utilized for generating ultrasonic guided waves in pipe structures. Its operation is based on the principles of the Joule and Villari effects. The MsS system consists of three cable components - transmitting (T_C), biasing (B_C), and receiving (R_C) coils arranged side by side, with the entire sensor assembly placed over the magnetostrictive sensor element in the form of sheet, pasted on the test pipe, schematically shown in the Fig. 1. To generate guided waves, an amplified AC pulse is applied to the T_C coil, inducing ultrasonic-frequency vibrations in the ribbon due to the magnetostrictive principle (Joule effect). This mechanical vibration generates guided waves that volumetrically propagate along the pipe length. Simultaneously, a DC is supplied to the B_C coil to enhance the transduction efficiency of the propagating wave. When the reflected mechanical waves interact with the sensor material, they induce stress, leading to variations in the material's susceptibility. These changes are detected by the R_C coil in terms of voltage signal, based on the Villari effect. The Magnetostrictive sensor can be used for assessment of ferrous as well as non-ferrous pipes. For the guided wave generation and detection in a pipeline, an amorphous ferromagnetic ribbon is initially bonded to the pipe surface. Subsequently, an electromagnetic sensor is placed above the ribbon. The output signal from the sensor is shown in Fig. 2. The generation and detection of guided waves in pipelines utilize Magnetostrictive Sensor (MsS) technology, which operates based on the Joule effect

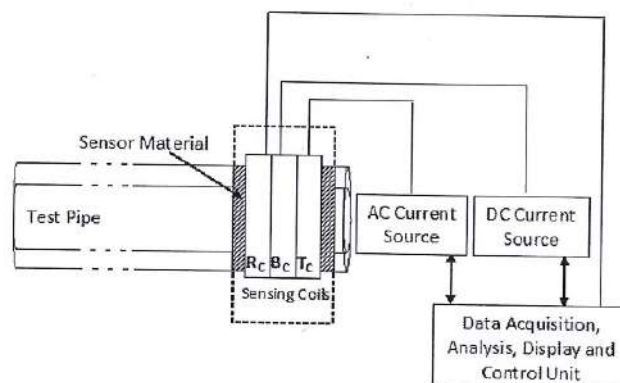


Fig-1. Scheme of the Magnetostrictive Sensing Device.

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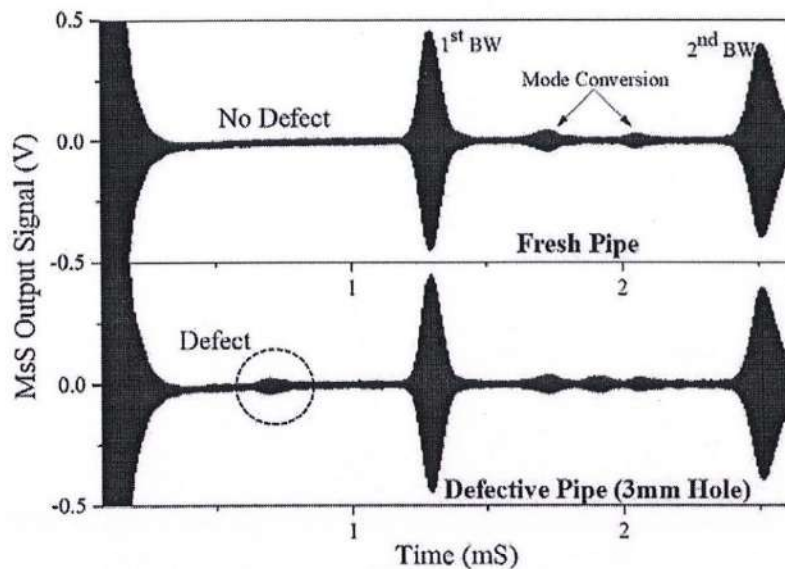


Fig-2. Magnetostrictive sensor signal from a pipe

(Magnetostriction) for wave generation and the Villari effect (Inverse Magnetostriction) for wave detection. According to the Joule effect, when a ferromagnetic material is exposed to an external dynamic magnetic field, it undergoes dimensional changes, a phenomenon known as magnetostriction. Conversely, when stress is applied to a ferromagnetic material, it leads to a variation in its magnetization, a phenomenon referred to as the Villari effect. The Villari effect is the inverse of the Joule effect and is commonly termed as inverse magnetostriction. As the ultrasonic guided wave travels through the test pipe, it interacts with structural defects causing reflections. The reflections are either from pipe ends as backwall echoes 1st BW, 2nd BW and / or from the defect which appears between excitation and backwalls (Fig. 2).

2. The components of the sensing device are as follows:

- (i) Magnetostrictive Sensing Device
- (ii) Sensing Coils

(i) Magnetostrictive Sensing Device :

- (a) The Alternating Current (AC), Direct Current (DC) excitation and interface facilities:

Sl No.	Parameter	Specification
(I)	AC excitation : To generate ac magnetising field in transmitting coil for magnetising the sensing element.	
1.	AC excitation Voltage	Range : 0 to 180V peak to peak

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2.	AC excitation Frequency	30 kHz to 300 kHz
3.	No. of Tones	1-10 selectable
4.	Repetition Rate	1-100 Hz selectable
5.	AC envelope	Hanning
(II)	DC excitation : To generate dc magnetic field for biasing the sensing element to get maximum advantage of magnetostriction effect (enhanced transduction).	
6.	DC excitation Voltage	Range : 0 to 20V Regulated DC
(III)	PC Interface and Display: To control AC and DC along with data acquisition.	
7.	PC interface	Wire and Wireless communication (minimum distance of 5 metres) between Magnetostrictive sensing device and the laptop.
8.	Display	7 inches TFT for display of parameters
9.	PC GUI	Windows based GUI software console

(b) Data Acquisition and Analysis :

SI No.	Parameter	Specification
1.	Data file format	.csv for MS excel
2.	Signal analysis	Post processing of the recalled data for peak values, time domain /location of the defect from the signal obtained with respect to time domain.

(c) Sensing Coil and Cable System

(i) Integrated Sensing Coil System:

Enamelled copper wire for coils. Width of each coil for T_C , B_C , R_C is 12 mm each.

SI No.	Component	Purpose
1.	Transmission Coil, T_C Typical no of turns : 40 Wire diameter : 22 SWG	To generate ac magnetising field for magnetising the sensing element.
2.	Biasing Coil, B_C Typical no of turns : 200 Wire diameter : 34 SWG	To generate dc magnetic field for biasing the sensing element to get maximum advantage of magnetostriction effect (enhanced transduction).
3.	Receiving Coil, R_C Typical no of turns : 200 Wire diameter : 34 SWG	To pick up ac signal generated by Villari effect of the sensing element.

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Number of Integrated Sensing Coil System to be supplied for pipes having outer diameters of 44.50mm, 54mm, 63.50mm : Total 03 Nos

(ii) Sensing Cable System:

Cables (i)	FFC, Cable Length mm (ii)	FFC, Cable width (mm) (iii)	Number of tracks in each cable (iv)	Number of Cables in Series (v)	Total number of Tracks (iv) × (v)
Transmitting Cable (T _C)	300*	20	40 (40 pin)	2	80
Biasing Cable (B _C)	300*	20	40 (40 pin)	2	80
Receiving Cable (R _C)	300*	20	40 (40 pin)	5	200

* FFC Cable length is 300mm for pipe OD 44.50mm

FFC Cable length is 350mm for pipe OD 54mm.

FFC Cable length is 400mm for pipe OD 63.50 mm.

FFC cable width, number of tracks, number of cables and total number of Tracks remain identical.

Number of Sensing Cable System to be supplied for pipes having outer diameters of 44.50mm, 54mm, 63.50mm : Total 03 Nos

3. Operation and Maintenance Manual

Hardcopies and Soft copy of Operation and maintenance manual of the Magnetostrictive sensing device should be supplied along with the equipment.

4. Instrument carry case :

Industrial carry case (Pelican Case with Pick N Pluck Foam and with wheel) to ensure a protective casing of the device during travelling.

5. Appropriate Grounding and adapters

An appropriate grounding system should be incorporated within the device to avoid signal noise from the line power supply. Equipment should be provided with adapters for an option to connect with a domestic power supply (15A/5A) through appropriate plug/ socket.

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6. Supply and Installation

The equipments (2 Nos) should be supplied and installed at CSIR-NML.

7. Acceptance criteria

- (i) Testing of pipes at CSIR-NML using supplied Magnetostrictive sensing devices for backwall echoes.
- (ii) Satisfactory operation at different operating AC and DC voltages, driving frequencies to get backwall echoes.

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ACCEPTANCE CERTIFICATE FORM

No. _____

Dated: _____

M/s. _____

Sub: Certificate of commissioning of -----

01. This is to certify that the equipment as detailed below has/have been received in good condition along with all the standard and special accessories (subject to remarks in Para 2). The same has been installed and commissioned.

- (a) Contract No. _____ Date _____
- (b) Description of the equipment _____
- (c) Name of the consignee _____
- (d) Scheduled date of delivery of the consignment to the Lab./Instts. _____
- (e) Actual date of receipt of consignment by the Lab./Instts. _____
- (f) Scheduled date for completion of installation/commissioning _____
- (g) Training Starting Date _____
- (h) Training Completion Date _____
- (i) Names of People Trained _____
- (j) Actual date of completion of installation/commissioning _____
- (k) Penalty for late delivery (at Lab./Instts. level) ₹ _____
- (l) Penalty for late installation (at Lab./Instts. level ₹ _____

Details of accessories/items not yet supplied and recoveries to be made on that account:

Sl. No.	Description	Amount to be recovered

02. The acceptance test has been done to our entire satisfaction. The supplier has fulfilled his contractual obligations satisfactorily

or

The supplier has failed to fulfil his contractual obligations with regard to the following:

(a)

(b)

(c)

(d)

The amount of recovery on account of failure of the supplier to meet his contractual obligations is as indicated at Sr. No. 3.

For Supplier

For Purchaser

Signature

Signature.....

Name

Name.....

Designation

Designation.....

Name of the firm.....

Name of the Lab/Instt.....

Date

Date.....

PERFORMANCE SECURITY FORM

MODEL BANK GUARANTEE FORMAT FOR PERFORMANCE SECURITY

To,

.....

WHEREAS (name and address of the supplier) (hereinafter called "the supplier") has undertaken, in pursuance of contract No. datedto supply (description of goods and services) (herein after called "the contract").

AND WHEREAS it has been stipulated by you in the said contract that the supplier shall furnish you with a bank guarantee by a scheduled commercial bank recognized by you for the sum specified therein as security for compliance with its obligations in accordance with the contract;

AND WHEREAS we have agreed to give the supplier such a bank guarantee;

NOW THEREFORE we hereby affirm that we are guarantors and responsible to you, on behalf of the supplier, up to a total of (amount of the guarantee in words and figures), and we undertake to pay you, upon your first written demand declaring the supplier to be in default under the contract and without cavil or argument, any sum or sums within the limits of (amount of guarantee) as aforesaid, without your needing to prove or to show grounds or reasons for your demand or the sum specified therein.

We hereby waive the necessity of your demanding the said debt from the supplier before presenting us with the demand.

We further agree that no change or addition to or other modification of the terms of the contract to be performed there under or of any of the contract documents which may be made between you and the supplier shall in any way release us from any liability under this guarantee and we hereby waive notice of any such change, addition or modification.

This guarantee shall be valid until the day of, 20.....

(Signature of the authorized officer of the Bank)

.....

Name and designation of the officer

.....

Seal, Name & Address of the Issuing Branch of the Bank

Note: Whenever, the bidder chooses to submit the Performance Security in the form of Bank Guarantee, then he should advise the banker issuing the Bank Guarantee to immediately send by Registered Post (A.D.) an unstamped duplicate copy of the Guarantee directly to the Purchaser with a covering letter to compare with the original BG for the correctness, genuineness, etc.