

Corrigendum -1 to Tender for supply of Engine Testing Dynamometer & Accessories

Sub: Replies to queries raised by firms during pre-bid meeting held on **17-01-2022** at Engine Division, BEML Ltd., Mysore

Ref: 1. Tender for “**Test Facility for 1500 hp Engine**”
2. Tender Ref. **6300036916** Dtd 27.12.2021

The firms interested to participate in the tender and also those participated in the Pre-bid meeting have raised few queries /requirements with respect to the tender.

The clarifications /replies have been provided in this corrigendum.

Points to be noted and complied by the bidders:

- a) The original tender and this corrigendum are part of the scope of the tender and to be complied with by the bidders. The quotation will be evaluated accordingly.
- b) The relevant points enumerated below are incorporated in Annexure-1 and Annexure-2 as **revised annexure**. Hence for Annexure 1 & 2 the enclosed **revised versions only** to be referred and compliance to be given in the Technical Bid. All other documents of the original tender are unchanged, valid and to be referred to by the bidders.
- c) In view of the Covid Restrictions, the firms who have already visited Engine Division – BEML Ltd., for technical discussion on the project and entered into NDA (Non-disclosure agreement), need not visit as part of clause 4.0.15, if no further clarification/site visit is required by the firms.
- d) Regarding payment terms, BEML terms are indicated in the tender. However firms can offer their terms , payment terms will be finalized before order placement.
- e) Aadhar copies of the visiting personnel during the project execution are mandatory.
- f) The participating firms have to submit the documents as per point no 1.0 of **General terms and conditions** , Revised Annexure -2 of the tender.

BEML replies/ clarifications are as given below.

BEML REPLIES TO PRE-BID MEETING QUERIES PERTAINING TO ANNEXURE-1 (Technical) OF THE TENDER.

I. EXISTING TENDER POINTS :

REF SL. No.	DESCRIPTION	SPECIFICATION DETAILS AS PER ORIGINAL TENDER	PRE - BID QUERIES	BEML Reply to Pre-bid query
1A15.3	Working environment of Dynamometer	0 - 60 deg C	BEML is requested to review the temperature inline with expected operating range for the proposed test cell.	15°C to 45°C Working environment temperature to be considered.
1 F	ECU Interface for Communication	Maximum numbers of ECU parameters to be logged to interface will be finalized during pre bid meeting, before bid submission)	BEML is requested to give the list of parameters to be logged from ECU.	The min. Interface parameters are given below as Annexure (a)
1L7-1	Control cabinet	Shall be dust and dirt free with IP54 protection with Panel AC	BEML is requested to review the requirement for a suitable alternative like EN 60529 => IP 21 with Roof fan to meet the functional requirements.	Suitable protection (IP21 or above) considering the application requirement to be ensured in the design
1L7-2	Ambient temperature condition inside the Engine Test Cell	Max. 60 deg C	BEML is requested to review the temperature in-line with expected operating range for the proposed test cell.	15°C to 45°C Working environment temperature to be considered.
1L14-6	Hard Disk	6 TB	Firm informed that 6 TB requirement will be met with suitable arrangement like back up server system. - Requested to BEML to accept the same.	Accepted
1L14-9	Software	1. MS Office, PDF, Antivirus licensed version.	Firm informed that the Antivirus is generally not preferred for automation PC which will function as standalone. Requested BEML to accept the same.	Accepted, however necessary protection for the software and data to be ensured.
1M1.7	Total Qty is 7 Nos or more cameras are required for the coverage of the area as per the requirement.		One of the Firm has expressed that 5 cameras are sufficient. BEML is requested to review the same.	7 Nos Cameras are to be supplied as per the Tender.

1N2	Uninterrupted power supply :	Uninterrupted power supply - 1 Nos Suitable rating for computer- Champion make or reputed make, 30 min back up time. Firm to indicate the make.	Firm expressed that this UPS of 3 Kva will provide back up to Dynamometer Automation system only. BEML to clarify the requirement.	Supply and Commissioning of UPS shall be as per point no. 4.27 of Annexure - S.
4.18.4	Smooth bends of long radius shall be used wherever required to reduce pressure drop.		This specification seems to be applicable to Water pipes not for Electrical cables. BEML to clarify the requirement.	Applicable to Water pipeline work.
4.18.5	The welded joints should be sound, neat and leak proof for pipes and bends.		This specification seems to be applicable to Water pipes not for Electrical cables. BEML to clarify the requirement.	Applicable to Water pipeline work.
5.18.6	Additional 1/2" x 2 points with valve to be provided for general use inside the Test cell.		Additional water line pressure/volume to be confirmed by BEML.	It is for general application inside the Test cell, hence pressure and flow are not a criterion.
5.26.9	All pipe lines shall have flanged joints at suitable distances forming as connectors of piping lengths.		Firm expressed that only required joints will be flanges rest will be direct pipe to pipe weld joints. BEML to confirm the same.	Accepted. Arrangement Finalised during DAP.
5.26.16	Warranty :The supply and services should carry warranty of two years from the date of installation and commissioning		Firm expressed that the 2 years warranty will be offered only for supplier's make items and less for outsourced items. BEML to clarify the same.	The 2 years Warranty shall applicable to all the material supplied and services carried out under the PO contract.
10.1	Scope: Design, supply and installation of fire detection and suppression system for the proposed new test cell TC-10 and its control room and Diesel tank area.		Firm expressed that the Automatic mode of Fire Suppression is suitable only for inside the Test cell and control room. Auto suppression system is not recommended for diesel tank area which is kept	Accepted. The Scope of Automatic Fire Detection and Suppression system is limited to inside the test cell and control room of Test cell 10.

			<p>outside the test cell. BEML is requested to consider and to confirm the same.</p> <p>Further, Firm requested BEML to provide more clarification regarding TYPE & MAKE of the Fire detection and Suppression system.</p>	<p>The Fire suppression shall be Inert gas/clean agent/High pressure water mist type(Supported by Pressurized N2).</p> <p>The MAKES are indicated at Table 26 of revised Annexure-1</p>
12.5	Make	Horiba / AVL	Firm requested BEML to incorporate CP-SIERRA make Fuel Conditioner also.	Incorporated. PI refer Table 26 of revised Annexure-1
12.8	Fuel flow rate	340 kg/h	Firm requested BEML to reconfirm the values	Fuel Consumption Measuring requirement is up to 320 kg/hr. The instrument capacity should cater the same.
12.9	Measuring Range(Max)	320 kg/h	Firm requested BEML to reconfirm the values	320 Kg/Hr - confirmed.
12.12	Ambient Temperature	15 to 50 °C	BEML is requested to review the temperature inline with expected operating range for the proposed test cell.	15°C to 45°C Working environment temperature to be considered.
12.14	Temperature Fuel supply to the SFC meter	10 to 40 °C	BEML is requested to review the temperature inline with expected operating range for the proposed test cell.	15°C to 40°C Working environment temperature to be considered.
13.13	Return fuel flow from the Engine (Approximately)	120 LPH	BEML to reconfirm the values	300 LPH return fuel flow to be considered.
13.14	Return fuel pressure from the Engine (Approximately)	2 bar	BEML to reconfirm the values	Confirmed
13.15	Return fuel temperature from the Engine	90 °C	BEML to reconfirm the values	Min. 90 °C
13.9	Ambient Temperature	15 to 50 °C	BEML is requested to review the temperature inline with expected operating range for the proposed test cell.	15°C to 45°C Working environment temperature to be considered.
15.01	<p>SCOPE : Supply, Installation, Commissioning and Performance prove out of Engine Exhaust Smoke Meter with accessories for use in Diesel Engine Test Cell as per the following technical specification.</p>		Firm requested BEML to exclude the Smoke meter from the turn-key scope, if possible.	Smoke meter to be supplied as per the tender scope.

15.12	Working environment temp	0 to 55 °C	BEML is requested to review the temperature in-line with expected operating range for the proposed test cell.	15°C to 45°C Working environment temperature to be considered.
1B10.5	Additional analog and digital I/O – Channels, If required.	Will be finalized during pre bid meeting before bid submission	Firm requested BEML to confirm about the number of channels required?	The firm has to provide adequate no. of ports and channels for interfacing and integration for all the instrumentation required to conduct the 5 types of test cycles wherever data logging/control are required under automation.

II. FRESH / NEW Points discussed during Pre-bid meeting and incorporated in the tender (Technical)

1	BEML informed that the following items/features are additionally required to be supplied under the scope of this tender. The details are provided in revised Annexure -2.			
2	Special sensors for surface temperature measurements to be supplied and integrated with Test Cell Automation.		Firms agreed for the same	New requirements are incorporated. PI refer point No. 1B8.3, 1B8.3(a) and 1B8.3(b) of Revised Annexure - 1
3	1 No. Non-intrusive type water flow meter and sight glass to be supplied and installed in the water outlet pipe from the Engine to the HT conditioner for the tender specified flow rate.		Firms agreed for the same	New requirements are incorporated. PI refer point No. 1B10.2 of Revised Annexure - 1
4	1 No. Non-intrusive type water flow meter and sight glass to be supplied and installed in the water outlet pipe from the Engine to the LT conditioner for the tender specified flow rate.		Firms agreed for the same	New requirements are incorporated. PI refer point No. 1B10.3 of Revised Annexure - 1
5	Chiller of water cooled type is preferred		Firms agreed for the same	Incorporated. PI refer point No. 18.6 in the Revised Annexure-1

III. BEML REPLIES TO PRE-BID QUERIES PERTAINING TO ANNEXURE-2 OF THE TENDER (Terms and Conditions)

Tender Ref SL No.	Ref No	Description / Tender Requirement	PRE - BID QUERIES	BEML Reply to Pre-bid query
NIT	NIT : Bidder should remit EMD of Rs.21,90,000/-	NEFT/RTGS	Firm requested BEML to give bank guarantee option for EMD remittance.	Firms can submit EMD through BG in the BEML prescribed format.

3	Delivery Terms	FOR (BEML).	Firm requested BEML to furnish Custom duty exemption letter for import items portion.	Firms are requested to quote in INR only. For imports, HSS(High Sea Sales) is applicable. Hence custom duty will be paid by BEML.
6	Security Deposit	10% of PO Value	Firm expressed that as per the new govt notification it is 3% of PO value.	Security deposit BG equivalent to 10% of PO is applicable as per tender.
11	Inspection and testing	Part /component may be inspected and tested by the Purchaser prior to shipment	Firm expressed that, Pre-dispatch inspection can be arranged at overseas principals for the import items and local items at Indian manufacturers.	Accepted.
17	Guarantee/Warranty	The supplier shall warranty that the supplies made under the contract shall fully comply with the specifications laid out and shall provide Warranty for 24 months from the date of commissioning and final acceptance.	Firm expressed that Warranty / Guarantee is only against manufacturing defects in standard 1 Year after installation and commissioning or 18 months from the date of dispatch of material from Ex-works.	Warranty shall be applicable as per tender terms.
9	Supply of material	Before May' 2022	Firm expressed delivery after 6 months from date of design acceptance / 8 months from the date of release of P.O.	Firms are requested to quote best delivery schedule possible.
9	Installation, Commissioning and performance prove out of the Dynamometer	01-08-2022	Firm expressed that If engine is available & all the civil works of BEML & Utilities available by the time of material delivery., then Installation & Commissioning can be done within 3 months.	The time line is mentioned in the tender as per the project requirement. However, Firms are requested to indicate time frame required for Installation and Commissioning after readiness of site and availability of engine.
8	Performance prove out of the Dynamometer system with 1500 hp Engine	Feb/March 2023	Firm expressed that the subject activity can be done in 2 months after installation & commissioning	Accepted.

10	LD Clause	Purchaser shall levy LD for such delay @ 0.5% per week (7 days) and part thereof, subject to a maximum of 5% of the value of the delayed portion of the Purchase Order	Firm expressed that Due to COVID Situation there are many unknown challenges. Firms are not be able to foresee COVID Situation. Hence requested BEML to incorporate suitable clause in the tender to exempt L.D due to Covid related delays.	COVID protocols will be applicable for the contract as per Govt. of India guidelines from time to time.
17.3.4	Guaranteed Availability Clause	minimum 90% availability during this 2-year period	Firm expressed that after 1 year Recommended maintenance to be paid extra.	Firms are required to consider as per tender terms and quote accordingly.
18	Spares	Till the end of Warranty period, it is the responsibility of the firm to replace the spares required free of cost.	Only applicable against manufacturing defect. All other spares and consumable are to charged extra.	Replacement of defective parts, supply of consumables machine parts and calibration of the items supplied, mandatory service (4 visits per annum) are in the scope of the firm during warranty period. PI refer point No. 15.1 of revised Annexure - 2.
Tender closing Due Date	Due date	Jan 26' 2022	Firm requested BEML to extend closing date till Feb 15th 2022, as they need time to change the scope upon BEML confirmations .	Request is under consideration to extend the tender closing date.
-	Reg. GST TERMS & CONDITIONS		Firm requested BEML to confirm if there is any tax certificate applicable for reduced tax rate.	Firms to indicate applicable GST rates.
4.0.4	(Under Eligibility Criteria)	Wherever makes are indicated, firm to quote for the same.	Firms requested BEML to give the list of makes preferred for the items . Also BEML to confirm whether they can quote multiple makes for the item from the list.?	MAKES for the major items are given in newly added table at point No.26 in revised Annexure – 1 . Firms can quote one or more makes from the list and same to be supplied on order placement.

4.0.15	(Under Eligibility Criteria) Firm's representative should mandatorily visit the site with prior appointment before or on pre-bid meeting day to understand the scope before submitting the quotations. The quotation submitted by any firm without visiting the site to understand the scope of work, will be rejected.		Firms expressed through email that due to Covid restrictions they faced difficulty in visiting site on pre-bid meeting day . Hence requested to allow and consider the visit till the tender closing date to meet the qualification criteria.	In view of the Covid Restrictions, the firms who have already visited Engine Division – BEML Ltd., for technical discussion on the project and entered into NDA (Non disclosure agreement) need not visit as part of clause 4.0.15, if no further clarification/site visit is required by the firms.
4.0.18	(Under Eligibility Criteria) Fire retardant certificate for the items to be furnished along with the supplies.		BEML informed the firms to submit the fire retardant certificate for the relevant supplies.	Fire retardant certificate for the items to be furnished along with the supplies. PI refer point No. 4.0.18 of revised Annexure-2
2.1	Under GENERAL TERMS AND CONDITIONS:	The Price Quote for the scope of supply is in the following format in SRM. The firm to quote accordingly.	Firm requested BEML to clarify (i) The currency to quote for import content if any. (ii) If any line item contains both import and local content, how to quote for the same? (III) Firms requested BEML to accept line wise item supply and GRN.	(i) Firm is required to quote in INR only . (ii) If any imports are involved, High Sea Sales (HSS) arrangement for the same is preferred. For HSS, firm is required to quote on DAP(Delivery At Port) basis in INR. BEML will bear the Custom duty and GST and inland freight insurance charges . Inland freight charges (Port to destination) to be borne by the firm . For the local items (sourced within India), the firm is required to quote price on door delivery basis. GST and other duties to be indicated separately. In case a line item consists of both import and local items, the total price to be worked out as above and to be quoted as per the above format. The details of the work sheet and Import & Local items considered are to

				<p>be uploaded as a separate document sheet under attachments in the commercial bid.</p> <p>(iii) The items can be supplied at once or line wise in accordance with the installation schedule and GRN (Goods Receipt Note) will be done accordingly.</p>
10.0	PRE-DESPATCH INSPECTION:	The firm has to offer the items for pre-dispatch inspection by BEML personnel before dispatch from its works.	Since the supply firm has to source the non-core items from their sub vendors, firm requested BEML to accept for multi location PDI. Also to clarify about charges for the deputation, Boarding & lodging of PDI Team from BEML?	As far as possible minimum PDI (Pre-dispatch inspection) locations are preferred by BEML. Further BEML will bear the charges towards deputation of BEML PDI team. However, the necessary arrangements for smooth conduct of PDI and documentation, co-ordination are part of the firm's scope.
14.2	Installation, Commissioning	Installation, Commissioning and Performance prove out of 520 Kw trial engine.	Firm requested BEML to quantify the number of engines to be tested for the activity?	a) One Engine of 520 KW capacity to be tested as per the scope (Ref. Point no 12.2 of revised annexure -2) b) For 1500hp Engine please refer 12.3.3 of revised Annexure-2)
17	WARRANTY	Regarding Scope	Firm requested BEML to clearly /specify whether replacement of warranty spares, consumables and calibration of the equipments supplied are all in the scope of two years warranty?	Replied against point No. 18 above.

18	SPARES:	Firm is also required to quote for two years post warranty comprehensive AMC	Firm requested BEML to give a list of items for comprehensive AMC. Also need to indicate supply lead time for spares & consumables.	Firm is also required to quote for two years post warranty comprehensive AMC for Performance related items like Dynamometer, Controller, Automation system, Fire extinguisher, SFC meter, Fuel conditioner, Blow by meter, Air mass flow meter, LT-HT conditioner and CAHU.
23.0	PAINTING:	The Dynamometer with accessories should be painted with Blue colour to shade RAL 5015. Also, wherever not specifically indicated the equipment should be painted with RAL 5015 shade. The water pipes should be painted with green colour with necessary pre-treatment.	Firms informed that several products have their standard colours. Hence requested BEML to give the option to suppliers and to firm up during the P.O stage	Accepted.

The above clarifications, amendments also form the part of original tender and firms are required to comply with the points indicated in this corrigendum also. Please submit compliance to the points indicated in this corrigendum also along with the technical bid.

Note: Other technical specification, terms and conditions of the tender remain unchanged.

Enclosure to Corrigendum -1, Tender ref No. 6300036916

Annexure (a)

INTERFACE REQUIREMENTS BETWEEN ECU AND THE TESTCELL AUTOMATION FOR DISPLAY, ANALYSIS AND REPORT GENERATION

Interface

- Interface Requirement Specification between Engine ECU and Test cell Automation.

Details of ECU Interface Requirement Specification

- a) CAN SAE J1939 is available for sending the engine diagnostic parameters (status parameters and malfunction parameters/diagnostic codes).
- b) The list of hardwired signals to ECU from Panel
 1. Engine Start and Stop signal & Emergency start (starting engine under low battery voltage conditions)
 2. Engine cold start. (Glow plugs to be ON during cold cranking) and Tow start.
- c) The typical engine diagnostic parameters to be interfaced with Test cell Automation from ECU are as follows
 1. Engine rpm
 2. Throttle signal.
 3. Engine oil pressure in bar
 4. Engine coolant temperature
 5. Engine oil temperature
 6. Engine fuel temperature.
 7. Charge air temperature.
 8. Low fuel rail pressure warning.
 9. Engine hours.
 10. Engine emergency shutdown.
 11. High Coolant temperature warning.
 12. Coolant temperature low warning.
 13. Coolant flow failure warning.
 14. Coolant level 1 warning
 15. Coolant level 2 for engine shutdown.
 16. Throttle signal failure

17. Barometric pressure

18. Actual engine torque.

19. Demand engine torque.

20. Engine derating status.

21. Engine override information.

22. Fuel rate.

23. Fuel economy.

24. Rail pressure.

25. Malfunction codes for sensor failures, injector failures etc.

26. BITE status

27. Real time clock information

All the diagnostics information obtained in ECU to be sent in CAN network and also to be logged.