NAL/PUR/CSMST/528/19-Z

February 12, 2020

PROCEEDINGS OF THE PRE-BID CONFERENCE HELD ON 12TH FEB 2020 AT CSMST CONFERENCE HALL, CSIR-NAL, TOWARDS DEVELOPMENT, SUPPLY, INSTALLATION AND COMMISSIONING OF AUTOMATED METER, MIXING AND FABRIC IMPREGNATION MACHINE

The Pre-bid Conference was held and the following T&PC members attended the meeting: -

Sl. No.	Name & Designation		Role
1	Dr. C.M. Ananda	Chief Scientist/Head, ALD	Chairman
2	Dr. Soumendhu Jana	Sr. Pr. Scientist, PR	Member
3	Mr. J. Ramaswamy Setty	Sr. Principal Scientist, CSMST	Member
4	Mr. G.M. Kamalakannan	Sr. Principal Scientist, CSMST	Member- Convenor -TSC
5	AO or his representative		Member
6	FAO or his representative		Member
7	CoSP/SPO or his representative		Member - Convener (T&PC)

The list of Prospective bidders who attended the Pre-bid Conference is as per **Annexure-I.**

At the outset, the Chairman welcomed all the Members and the representatives of the Bidders and briefed in general the scope of the Project and thereafter requested **SPO** to brief the Bidders on the salient features of the commercial terms. The Indenting Officer to read out the clarification sought by the bidders and the replied thereto as detailed in **Annexure-II (Part A: Technical Clarification and Part B: Commercial Clarification, if any).**

The representatives present were satisfied with the replies given and it was informed that the corrections / additions / clarifications given, as discussed during the Pre-Bid Conference would be hosted on the website of CSIR-NAL and all prospective bidders are required to take cognizance of the proceedings of the Pre-Bid Conference before formulating and submitting their bids as stipulated in bidding Documents.

The meeting ended with a vote of thanks to the Chair.

Encl: as above.

CoSP/SPO-Member
Convenor -T&PC

FAO-Member

Admin-Member

12/02/2020
Dr. Soumendhu Jana
Member

J. Ramaswamy Setty
Member

12/2
G.M. Kamalakannan
Member

20/02/20
Dr. C.M. Ananda
Chairman

NATIONAL AEROSPACE LABORATORIES
BENGALURU - 560 017

TENDER NO.: NAL/PUR/CSMST/528/19-Z

ANNEXURE - I

DATE & TIME : 12-Feb-2020 @ 10:30 AM

VENUE: CSMST Conference Hall, CSIR-NAL, HALAirport Road, Kodihalli, Bengaluru-560017

Pre-Bid Conference forDevelopment, Supply, Installation and Commissioning of Automated Meter, Mixing and Fabric Impregnation Machine.

ATTENDANCE SHEET - PROSPECTIVE BIDDERS

Sr. No.	Name of the Firm	Name & Designation of Representative	E-tender Registration (Yes/No)	Email ID	Signature
1	Dopag India (P) Ltd.	Raghavendra.k		Raghavendra.kempaiahalli@dopag.in	
2	FABEX ENGINEERS	Nirmesh SATISH KHASNIS	Yes	prasannafabex@gmail.com satish.khasnis@fabexengineers.com	
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CSIR-NATIONAL AEROSPACE LABORATORIES
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ANNEXURE - I

Pre-Bid Conference for Development, Supply, Installation and Commissioning of Automated Meter, Mixing and Fabric Impregnation Machine

ATTENDANCE SHEET - T&PC MEMBERS

Sr. No.	Name		Signature
1	Dr. C.M.Ananda, Chief Scientist/Head, ALD	Chairman	
2	Dr. Soumendhu Jana, Sr. Pr. Scientist, PR	Member	
3	Mr. J. Ramaswamy Setty, Sr.Principal Scientist, CSMST	Member	
4	Mr. G.M. Kamalakannan, Sr.Principal Scientist, CSMST	Member-Convenor -TSC	
5	FAO or his representative	Member	
6	AO or his representative	Member	
7	CoSP/SPO or his representative	Member-Convenor T&PC	

Annexure - II

Proceedings for the pre-bid conference held on 12th Feb 2020 for the tender no. NAL/PUR/CSMST/528/19-Z

Contents

1. T&PC members attended and related minutes
2. Attendance sheet of prospective bidders
3. Technical queries & Clarifications

   (including modifications in chapter 4 and one addition in chapter 2)
4. Commercial queries & Clarifications

Note: Bidders are requested to comply with the tender specification subject to amendments given in these pre-bid proceedings. These proceedings supersedes the corresponding points given in chapter 2 and chapter 4.

G.M. Ramalaba

Ramaswamy

(Abhinay K.P)

CSIR-NATIONAL AEROSPACE LABORATORIES
BENGALURU

TECHNICAL QUERIES & CLARIFICATIONS

Tender No. : NAL/PUR/CSMST/528/19-Z
Item Description : Development, Supply, Installation and Commissioning Of Automated Meter, Mixing and Fabric Impregnation Machine

Sr. no.	NAL tender Spec. Reference	Query / Clarification Sought	Clarification/Amendment
1	Page no. 38, section 4.2.1, paragraph 3	Heating jacket with PT100 provided for tank or material heating and for integrated temperature control.	Heating jacket with PT100 sensor that will be in contact with the material is required. Integrated Temperature, pressure and flow control systems are needed for both resin and hardener tanks to ensure quality of the resin matrix.
2	Page no. 39, section 4.2.1, table no. 1	Standalone solvent flushing for mixer cleaning for static mixer system for safety aspect to be consider	Integrated solvent and air flushing is required for automated cleaning process. Motorized mixer system with variable speed is required to get better homogeneity of the mixture as stated in section 4.2.2.
3	Page no.39, sub-section a. of section 4.2.2, line 3	Material can be processed with Static Mixer to make homogeneous mixing of the resin and hardener.	Same as reply to point 2

(Abhinay K.P.)

4	Page no.39, sub-section a. of section 4.2.2, line 4	Material filter will be provided at the inlet of the gear pumps	Additional pump with filtering is required to supply clean component and to enhance life of the gear pump
5	Page no.39, sub-section a. of section 4.2.2, line 8	Tanks with heating jacket with PT for integrated temperature control.	Temperature of the components should be controlled as per program and the tank should have ports for pressurized air inlet and other purposes as per section 4.2.2
6	Page no.39, sub-section a. of section 4.2.2, line 15	Standalone solvent flushing for mixer cleaning for static mixer system for safety aspect to be consider	Integrated solvent and air flushing is required for automated cleaning process as per section 4.2.2
7	Page no. 43, table no. 2, point 3	9" SIEMENS HMI	Touch Screen size shall be 10" or more for better viewing and touch control. SIEMENS HMI of not less than 10" is acceptable.
8	Page no. 46, table no. 6,	0...100 bar (4...20mA)	Range shall be 0-10 bar (4-20 mA) to suit the operating pressure range of the tanks
9		Dispensing valve with static mixer.	Same as reply to point 3
10	Page no. 47, table no. 6, Filter pump motor detail	Desired filter before the gear pump.	Filter pump (Helical worm gear) motor is required for filtering the resin and hardener separately to supply clean component to the respective gear pumps
11	Page no. 49, table. 7	Suitable make with Festo/SMC/IMI to be considered for control valves	Agreed
12		DOPAG Heating jacket with PT100 provided with additional Thermostat switch with safety interlock for the tank-temperature control system.	Closed loop temperature control system (PID based) is required to maintain the component temperature as per the given specs. Additional thermostat with safety interlock shall be provided.
13		DOPAG make Gear pump for the components	Tartler, DOPAG or equivalent make

GM Kamalakar

14	Page no. 49, table. 7	Balluff or equivalent solid state angle sensor	Detail specifications and data sheet of the equivalent makes that will meet the machine requirements shall be submitted to NAL for review before using in the machine.
15		IFM or equivalent cable connectors	Same as reply to point 14
16	Page no. 50, table point 2	"Software tools, licences must be separately bought by the customer. DOPAG Shall share back up program of the machine."	All the pertinent software tools, licenses and programs should be supplied. This is required for maintenance and modification of the programs by NAL later.
17	Page no. 51, section 4.3 (iv)	We will support with programming whenever there is future upgradation.	Software and software tools required for programming the PLC / HMI, configuring the VFD etc. should be supplied by the bidder with license. This is required for maintenance and modification of the programs by NAL later.
18	Page no. 51, section 4.4.1 (1)	NAL to provide resin, hardener, solvent, fabric material during FAT. (page 53)	Yes. NAL will provide the resin, hardener , solvent and fabric material during FAT
19	Page no. 53, section 4.4.1 (1)	Metering pumps to be decoupled (or) to be run in re-circulation mode.	It is agreed to run the metering pumps in recirculation mode during dry run of the whole system for 8 hours of continuous operation
20	Page no. 54, section 4.7	Non-Comprehensive AMC.	Yes. The AMC type is Non-comprehensive.
21	Page no. 38, table no. 1	Properties about resin and hardener are required.	Resin density at room temperature (RT): 1.15 to 1.20 g/cc Hardener density at RT: 0.9 to 1.05 g/cc Hardener viscosity at RT: 50 to 110 mPas Resin & hardener ratio: 100:20 to 100:40 by weight Other properties are already given in Table 1

Modifications in chapter 4

Reference	Existing statement	Proposed or (read as) statement
Page no. 40, subsection b of 4.2.2	**X**- Axis: Clear Useful Width: 1400 mm, along the width of the fabric or table is required. **X**-axis movement can be achieved	**Y**- Axis: Clear Useful Width: 1400 mm, along the width of the fabric or table is required. **Y**-axis movement can be achieved
	Y-Axis: Clear useful Length: 650 mm. **Y**-axis movement shall be similar to **X**-axis	**X**-Axis: Clear useful Length: 650 mm. **X**-axis movement shall be similar to **Y**-axis.
Page no. 40, subsection c of 4.2.2	Fabric cutter: The table should be equipped with a push button operated dry fabric cutter. This shall be provided with a motorized circular blade, suitable guides and motor driven mechanism to move the cutter along **X**-axis and cut the fabric.	Fabric cutter: The table should be equipped with a push button operated dry fabric cutter. This shall be provided with a motorized circular blade, suitable guides and motor driven mechanism to move the cutter along **Y**-axis and cut the fabric.
Page no. 42, 1-para	The dispensing shall happen in both forward and reverse motion of the mixer head along **X**-axis.	The dispensing shall happen in both forward and reverse motion of the mixer head along **Y**-axis.
Page no. 45, table no. 4	Fabric width is specified for limiting the mixer head motion in **X**-axis	Fabric width is specified for limiting the mixer head motion in **Y**-axis
	Manual control to move the mixer head along the **X**-axis.	Manual control to move the mixer head along the **Y**-axis.
Page no. 48, table no. 6	Holds the hoses, cables etc. during the **X**-axis movement of the mixing head	Holds the hoses, cables etc. during the **Y**-axis movement of the mixing head
Page no. 50	**Technical details to be attached with the Quotation** 1 If the supplier recommends any modification in the control system architecture, or BOM and makes, the same should be provided in detail. NAL's **approval** should be obtained before the fabrication.	**Technical details to be attached with the Quotation** 1 If the supplier recommends any modification in the control system architecture, or BOM and makes, the same should be provided in detail for audit and review by NAL.

Ramaswamy P.C.

G M Kamalaboo

ABHINAT K.P.

<table>
<tr>
<td>Page no 51</td>
<td>(ii) Execution of the project as per the following steps
<table>
<tr><th>Sr. No.</th><th>Milestones</th><th>Deadline</th></tr>
<tr><td>1</td><td>Submission of the preliminary design documents</td><td>t_o + 2 weeks</td></tr>
<tr><td>2</td><td>Preliminary design review (PDR) at NAL</td><td>t_o + 4 weeks</td></tr>
<tr><td>3</td><td>Critical design review (CDR) at NAL</td><td>t_o + 7 weeks</td></tr>
<tr><td>4</td><td>Completion of the product development, integration and testing by supplier</td><td>t_o + 22 weeks</td></tr>
<tr><td>5</td><td>Acceptance test by NAL at supplier's site</td><td>t_o + 24 weeks</td></tr>
<tr><td>6</td><td>Delivery, erection, commissioning, acceptance tests and training at NAL</td><td>t_o + 28 weeks</td></tr>
</table>
't_o' starts from the date of purchase order</td>
<td>(ii) Execution of the project as per the following steps
<table>
<tr><th>Sr. No.</th><th>Milestones</th><th>Deadline</th></tr>
<tr><td>1</td><td>Preliminary design review (PDR) at NAL</td><td>t_o + 6 weeks</td></tr>
<tr><td>2</td><td>Critical design review (CDR) at NAL</td><td>t_o + 10 weeks</td></tr>
<tr><td>3</td><td>Completion of the product development, integration and testing by supplier</td><td>t_o + 25 weeks</td></tr>
<tr><td>4</td><td>Acceptance test by NAL at supplier's site</td><td>t_o + 27 weeks</td></tr>
<tr><td>5</td><td>Delivery, erection, commissioning, acceptance tests and training at NAL</td><td>t_o + 31 weeks</td></tr>
</table>
't_o' is the date of purchase order from NAL.
(iii) Necessary documents for every milestone should be submitted to NAL at least one week in advance.
(iv) Every milestone shall be reviewed by NAL.
(v) Fabrication shall be commenced after the CDR.
(vi) ATP will be done using any one type of the specified resin and hardener to avoid flushing and cleaning of various components.</td>
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<td>Page no. 46, table no. 6</td>
<td>
<table>
<tr><th>Description</th><th>Rating</th><th>Starter Type</th></tr>
<tr><td>Mixer head induction motor</td><td>3Ph, 415 V AC, 50Hz</td><td>VFD driven (0 to 120 Hz)</td></tr>
</table>
</td>
<td>
<table>
<tr><th>Description</th><th>Rating</th><th>Starter Type</th></tr>
<tr><td>Mixer head (induction or Servo motor)</td><td>3Ph, 415 V AC, 50Hz RPM range: ~1400 to 3000 RPM or appropriate</td><td>VFD driven (0 to 120 Hz) or appropriate</td></tr>
</table>
</td>
</tr>
<tr>
<td>Page no. 51, section 4.3</td>
<td>(i) Detail design of the machine to meet the laid-down and approved specifications and requirements. Detail design inputs and major BOM for the fabric and mixer head handling unit and the integrated control system will be given by NAL.</td>
<td>(i) Scope of NAL is to provide the details on the machine requirement and specifications. The bidder shall carryout the detail designs, where NAL will audit and review the designs at various stages.</td>
</tr>
</table>

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Page no. 51, section 4.3	(iv) Supply of all the programs (including PLC and HMI) along with the required software licenses to enable PLC programming, maintenance and future upgrade by NAL.	(iv) Supply of software and programs: a) Supply of all the software and programs developed for this tender, which shall include PLC and HMI programs. The software supply shall include the source code, executables, binary codes, and documentation. The documents shall include, requirement specifications, software design and software test reports. Two set of these shall be given in CDs. b) Supply of the software tools used for the development of the above (iv) with perpetual license. This shall include the PLC programming software, HMI programming software etc. with necessary documentation for their installation and operation. c) Supply of the operational software tools used for the above (iv.a) with the perpetual license. This shall include Variable Frequency Drive configuration software, sensor configuration software, etc. with necessary documentation for their installation and operation.
Page no. 51, section 4.3	(viii) Service manuals including troubleshooting with Preventive Maintenance Service (PMS) shall be provided. (ix) Certificate showing compliance to tested safety standard as per 4.2.2.e shall be provided.	(viii) Supply of documents: a. Operation, calibration, maintenance (including Preventive Maintenance Service) & service manuals of the prepreg making machine. The service manual shall include the as-built wiring diagrams with ferule information. It shall also include the troubleshooting procedure, list of all the items, spares, their order code or catalogue number and the replacement procedure as applicable. Two set of these manuals shall be provided in hard copy form and in CDs

		b. Supply of user manuals, data sheets, manufacturer's test certificates, configuration file of the COTS items. One set of these documents shall be provided in hard copy form and in CD c. Calibration and test certificates of the COTS items. One set of these documents shall be provided in hard copy form and in CD d. Certificate showing compliance to safety standards as per point 4.2.2.e.

Additional Content to be read as Included in the tender

Reference	Added Details
Page no. 25, section 2.8	**Copy Right and IP Right** 2.8.2. The foreground IP created for the design and development of the JIPREG machine shall be the property of NAL. 2.8.3. The bidder has to provide the list of background IP proposed to be used for the machine design and development as part of technical bid.
Page no. 41, section 4.2.2	**f. Volatile gases extraction system:** To effectively extract the volatile gases that are generated during resin & hardener spray or during flushing. Suitable transparent hood should be provided above the Mixing head, covering the Robot working area. This hood should be connected to a fume extraction unit through flexible duct. The exhaust duct should be brought outside the building up to a height of about 5 m above the ground level.
Page no. 50	**Technical terms and conditions** 14. The first right of production shall be with the successful bidder.

Signature of IO

Signature of PI

ABHINAT K.P.

Commercial queries & Clarifications

Note:

a) Design cost of the machine has to be indicated separately in the commercial bid.

b) Bidders should check the revised scope of supply, as uploaded in the pre-bid proceedings and submit the bids accordingly.