NAL/PUR/ACD/012/22-Z(G)

PROCEEDINGS OF THE PRE-BID CONFERENCE HELD 1st March 2023 THROUGH WEBEX, TOWARDS SUPPLY, INSTALLATION AND COMMISSIONING OF AUTOMATED FIBER PLACEMENT (AFP) SYSTEM.

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

SI.	Name	& Designation		Role
No.				
1	Dr. Ramesh Kumar. M	Chief Scientist, ACD	S. S. L.	Chairman
2	Dr. Soumendu Jana	Chief Scientist/PR		Member
3	Dr. J. N. Balaraju	Sr. Principal Scientist	/ SED	Member
4	Mr. Sunil Prasad	Sr. Scientist/ALD		Member
5	Mr. D. Karuppannan	Sr. Scientist/ACD		Member - Convener (TSC)

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. The Indenting Officer to read out the clarification sought by the bidders and the replied there to 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.

During Prebid meeting CSIR-NAL informed the vendors that any further queries may be forwarded to the purchase section by mail that also will be clarified.

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

Dr. J. N. Bala Raju

Member

D. Karuppanna

Member – Convener (TSC)

Dr. Soumendu Jana Member

Sunil Prasad Member

Dr. M. Ramesh Kumar 0(3)2 Chairman-T&PC

CSIR-NATIONAL AEROSPACE LABORATORIES BENGALURU - 560 017

TENDER NO. : NAL/PUR/ACD/012/22-Z(G) DATE & TIME : 01-Mar-2023 @ 11:00 AM VENUE : HYBRID MODE **ANNEXURE - II**

Pre-Bid Conference for Supply, Installation and Commissioning of Automated Fiber Placement (AFP) System

Sr. No.		Name		Signature
1	Shri. R. Satish Rohidekar	Chief Scientist & Head, RNCAC	Chairman	San Ruhl 20/3/28
2	Shri Vinod G Nair	Sc/Engineer SG, Head CMAD VSSC Triv <mark>a</mark> ndrum	External Expert	Alternate Member Mr Manoj, Scientist Attended meeting through WebEx
3	Shri. Lakshmi Narasimha N	DGM (Projects & Planning), ACD, HAL	External Expert	Could not attend the meeting
4	Shri Ramaswamy Setty J	Senior Principal Scientist, ACD	Member	Jamesowarme.
5	Shri.Gaddikeri Kotresh	Chief Scientist & Dy. Head, ACD	Project Leader	Could not attend the meeting due to official tour.
6	Shri Karuppannan D	Senior Scientist, ACD, Indenting Officer	Member - Convener (TSC)	Arrany 17.5/23

ATTENDANCE SHEET - TSC MEMBERS

CSIR-NATIONAL AEROSPACE LABORATORIES BENGALURU - 560 017

TENDER NO.: NAL/PUR/ACD/012/22-Z(G) DATE & TIME : 01-Mar-2023 @ 11:00 AM VENUE: THROUGH WEBEX ANNEXURE - I

Pre-Bid Conference for Supply, Installation and Commissioning of Automated Fiber Placement (AFP) System

ATTENDANCE SHEET - T&PC MEMBERS

Sr. No.		Name		Signature
1	Dr. Ramesh Kumar. M	Chief Scientist, ACD	Chairman	dant 2013
2	Dr. Soumendu Jana	Chief Scientist/PR	Member	
3	Dr. J. N. Balaraju	Sr. Principal Scientist / SED	Member	Aller 1713123
4	Mr. Sunil Prasad	Sr. Scientist/ALD	Member	2000 10 10 3/2013
5	Mr. D. Karuppannan	Sr. Scientist/ACD	Member - Convener (TSC)	ammy m23

Tender No: Pre	Pre-Bid Conferecne Participated Vendor's Attendance Sheet Tender No: NAL/PUR/ACD/012/22-Z(G) Date : 01/03/2023 & Time : 11.00AM Pre-bid conference for 'Supply, Installation and commissioning of Automated Fiber Placement (AFP) System						
Meeting Start Time	Meeting End Time	Display Name	Role	Attendee Email	Join Time	Leave Time	Attendance Duration
2023-03-01 10:32:30	2023-03-01 13:36:47	Advanced Composites Division	Host	mjaugustin@nal.res.in	2023-03-01 10:37:12	2023-03-01 13:37:18	181 mins
2023-03-01 10:32:30	2023-03-01 13:36:47	Aerospace International Inc., Bangalore	attendee	sales@aerospace.co.in	2023-03-01 10:58:14	2023-03-01 13:30:17	153 mins
2023-03-01 10:32:30	2023-03-01 13:36:47	Al Gray	attendee	alastairg@electroimpact.c om	2023-03-01 11:30:40	2023-03-01 12:45:51	76 mins
2023-03-01 10:32:30	2023-03-01 13:36:47	Anis Mohamed Mikrosam	attendee	anis@absindia.in	2023-03-01 10:58:05	2023-03-01 11:13:00	15 mins
2023-03-01 10:32:30	2023-03-01 13:36:47	Anis Mohamed Mikrosam	attendee	anis@absindia.in	2023-03-01 11:13:37	2023-03-01 13:30:23	137 mins
2023-03-01 10:32:30	2023-03-01 13:36:47	Baaridun Nasr Mikrosam	attendee	baaridun@absindia.in	2023-03-01 10:52:31	2023-03-01 13:29:14	157 mins
2023-03-01 10:32:30	2023-03-01 13:36:47	CMSE OSF-HALL VSSC	attendee		2023-03-01 10:50:28	2023-03-01 12:24:12	94 mins
2023-03-01 10:32:30	2023-03-01 13:36:47	Erik Berg	attendee	erik.berg@broetje- automation.de	2023-03-01 11:00:00	2023-03-01 13:29:11	150 mins
2023-03-01 10:32:30	2023-03-01 13:36:47	James Tingle	attendee	jtingle@accudyne.co.uk	2023-03-01 11:02:05	2023-03-01 13:00:18	119 mins
2023-03-01 10:32:30	2023-03-01 13:36:47	Javier MT	attendee	javier.sada@mtorres.com	2023-03-01 11:00:03	2023-03-01 13:21:00	141 mins
2023-03-01 10:32:30	2023-03-01 13:36:47	Kevin Malliris	attendee	kevinm@electroimpact.co m	2023-03-01 10:37:13	2023-03-01 13:29:13	172 mins
2023-03-01 10:32:30	2023-03-01 13:36:47	Kirankumar Dixit	attendee	kiran@intelmacindia.com	2023-03-01 11:01:01	2023-03-01 13:30:19	150 mins
2023-03-01 10:32:30	2023-03-01 13:36:47	Kriti- P. Sheshadri	attendee	bangalore@kriti- group.com	2023-03-01 10:52:18	2023-03-01 13:30:06	158 mins
2023-03-01 10:32:30	2023-03-01 13:36:47	Kyle Jeffries	attendee	kylej@electroimpact.com	2023-03-01 10:51:00	2023-03-01 13:29:18	159 mins

Г

Sheet 01 of 02

1

Meeting Start Time	Meeting End Time	Display Name	Role	Attendee Email	Join Time	Leave Time	Attendance Duration
2023-03-01 10:32:30	2023-03-01 13:36:47	mipl	attendee	maharshisimlai007@gmail .com	2023-03-01 10:59:25	2023-03-01 13:30:01	151 mins
2023-03-01 10:32:30	2023-03-01 13:36:47	MTORRES WEBEX	attendee	a-gmtlic@mtorres.com	2023-03-01 11:00:24	2023-03-01 13:30:06	150 mins
2023-03-01 10:32:30	2023-03-01 13:36:47	Naveen	attendee	naveen.patel@empiremt.c om	2023-03-01 10:58:28	2023-03-01 13:30:44	153 mins
2023-03-01 10:32:30	2023-03-01 13:36:47	Nils Brunswig	attendee	nils.brunswig@broetje- automation.de	2023-03-01 11:02:52	2023-03-01 13:29:32	147 mins
2023-03-01 10:32:30	2023-03-01 13:36:47	RUDRA	attendee	rudra@intelmacindia.com	2023-03-01 11:00:26	2023-03-01 13:37:18	157 mins
2023-03-01 10:32:30	2023-03-01 13:36:47	Samoil Samak	attendee	ssamak@mikrosam.com	2023-03-01 10:58:30	2023-03-01 13:29:14	151 mins
2023-03-01 10:32:30	2023-03-01 13:36:47	suresh gujjar	attendee	suresh@empiremt.com	2023-03-01 10:50:37	2023-03-01 13:30:54	161 mins
2023-03-01 10:32:30	2023-03-01 13:36:47	Thomas Oetken	attendee	thomas.oetken@broetje- automation.de	2023-03-01 11:03:12	2023-03-01 13:29:28	147 mins

approv Shri D Karuppannan, Member-Convener

Sachul 20/3/23

Shri. R. Satish Rohidekar, Chairman (TSC)

Dr M RameshKumar, Head , ACD 2012

Sheet 02 of 02

CSIR-NATIONAL AEROSPACE LABORATORIES BENGALURU

TECHNICAL QUERIES & CLARIFICATION

Tender No. Item Description : NAL/PUR/ACD/012/22-Z(G)

: Supply, Installation and Commissioning of Automated Fiber Placement (AFP) System.

Sr. No.	Query / Clarification Sought	Clarification/Amendment
1	4.2.1.1. Machine should be a portal Gantry construction with floor level guideways design. AFP head mounted on a robotic arm will not be considered.	Clarification: No change in the Specification as per tender document.
2	4.2.1.1. Maximum movement of the machine or working envelope.	Clarification: The mentioned dimensions (7m (L)x 3m (W) x1m (H)) are useful working envelope.
	4.2.1.1. 'Z' Vertical dimension 1000 mm is from ground or tool height/depth	Clarification: Nominal vertical working capacity: 1000 mm Vertical maximum axis stroke : 1000 mm Assumption: Moulds/ tools are kept 1000 mm & above from floor level.
3		1000 mm Working Stroke of 'Z axis'
	A C	Representative Sketch Floor Level
4	4.2.1.3. As per enclosed drawings 'B' axis not required.	Clarification: The minimum B axis $\pm 60^{\circ}$ is required. Bidder is free to design more than $\pm 60^{\circ}$, but less than $\pm 60^{\circ}$ is not acceptable.
	4.2.2.3. Representative sketch can be given with approximate overall dimensions (x, y, z), in particular curvature radius in case of female tools.	Clarification: Working volume should be met as per clause 4.2.1.1. Female tools (concave downwards) radius min 950mm for semi-circular moulds as shown in Figure.
5		R 950 mm (Min)
6	4.2.2.3. Representative sketch of (3) is looks kept on the ground.	Clarification: Tool item 1 & 2 are with backup structure and kept on the ground For item 3, the layup surface of the mould will be 1000mm & above from the floor level.

Sr. No.	Query / Clarification Sought	Clarification/Amendment
7	4.2.8. a) Tension range (Variable): up to 10 Newton \pm 10% per tow	Amendment: Tension range (Variable): 4 to 10 Newton ± 1 N per tow
8	4.2.11. Laser Heating. Safety of Laser usage to be specified.	 Amendment: 1. Vendor should provide the laser safety certification like ISO 11553-1/IEC 60825-1/ANSI Z136.1/equivalent for the offered AFP machine. 2. Vendor should incorporate Engineering control safety measures of LASER system and/or its application environment including the beam path, which prevents human access to hazardous levels of LASER radiation or to nonbeam hazards. 3. Vendor should specify procedural control measures and work practices intended to minimise the hazards. It covers the overall policy, including training, hazard warning, assignment of responsibilities and prohibitions. 4. Vendor should also provide six sets of personal protective Equipment (PPE) like protective eyewear, clothing and gloves for the class of laser being offered.
9	4.2.11.9. Thermal camera for quality control with image processing capability for automated detection of defects like gaps, overlaps, wrinkles, twist, missing tows, folds, bridging, splice and the like.	Amendment: Thermal camera or any other suitable system for quality control with image processing capability for automated detection of defects like gaps, overlaps, wrinkles, twist, missing tows, folds, bridging, splice and the like. System should also detect the inclusion of protective film on either side of prepreg tow in the layup. The system provided should also include software to perform quality control of layup using image processing. Software should have feature like warning of operator for any kind of defect occurring during layup process.
10	4.2.16.1 Location tooling way: Ball measuring probe	Amendment: 4.2.16.1 Location tooling way (Mould Alignment System) : The system shall be (i) a laser mounted on the head, which measures the calibrated balls without contact and (ii) a RMP Renishaw probe which can be assembled into the head. Details to be provided. These measurements shall enable the mould alignment and the beginning of the fibre placement process

		Moulds will also be provided with Optical Target Points (OTP)
11	4.2.18 Wireless Remote Pendant Control is	Clarification: No change in the Specification as
12	4.2.19. Computer Numerical Control Siemens 840 DSL is older one and latest is SINUMERIK ONE	Amendment: The fiber placement machine shall have a latest Computer Numerical Control latest SINUMERIK ONE or Beckhoff TwinCAT latest version dedicated to axes control & fiber placement processing with user friendly software for system control, process control and human system interface control including networking to the systems at site
13	4.2.24 Requirement of CE certification for this system.	Clarification: CE certificate is not required
14	 4.2.28. (d) Compaction roller for thermoplastic Composites - 10 Nos each for ¼" and ½" tow width for diameter 50 mm 	Amendment: Vendor should provide compaction roller for thermoplastic Composites - 20 Nos each for $\frac{1}{4}$ " and $\frac{1}{2}$ " tow width as per the machine requirements.
15	4.2.26 Utilities & Site requirements	Amendment: With regard to the civil works CSIR NAL will provide foundation and floor only. Any other civil works required for the machine will be in the scope of vendor/bidder
16	 4.2.28. (e) Compaction roller for Thermoset & dry fiber Composites -10 Nos each for ¼" and ½" tow width for diameter of 30, 40, 50 & 60 mm) 	Amendment: Vendor should provide Compaction roller for Thermoset & dry fiber Composites -20 Nos each for $\frac{1}{4}$ " and $\frac{1}{2}$ " tow.
17	4.2.28 Vendor/Bidder shall provide recommended spares to maintain the machine for the ten years.	Amendment: Vendor/Bidder to meet the obsolescence clause as per 4.6.4. However, vendor should supply Accessories/spare parts apart from the those in standard scope of supply with the AFP machine.
18	4.7 Delivery of the item is expected to be within 10 month of PO placement, which is not possible. Extension may be given.	Amendment: 12 months from date of acceptance of PO
19	With respect to warranty, in the General Terms & Conditions (GCC), Clause No. 2.20.3, it is mentioned as 12 months from the date of acceptance or 18 months from the date of shipment, whichever is earlier. However, in the technical documents – Chapter 4, Clause No. 4.6.1, it is mentioned as 2 years from the date of commissioning. Please confirm which clause is to be considered to comply with warranty requirements.	Clarification: As per Chapter 4, Clause 4.6.1 is to be considered for warranty requirements, which is 02 years from the date of acceptance at CSIR NAL. This is a mandatory requirement.
Sign	ature of 10 2013/2023 (ARUPPONNAN.D)	Signature of PL Ro /3/2

(KARNPPANNAN,D)

Technical Queries & Clarifications

Page 3 of 3

CSIR-NATIONAL AEROSPACE LABORATORIES BENGALURU

COMMERCIAL QUERIES & CLARIFICATION

Tender No. Item Description

NAL/PUR/ACD/012/22-Z(G)
Supply, Installation and Commissioning of Automated Fiber Placement (AFP) System

Sr. No.	Query / Clarification Sought	Clarification/Amendment		
	NIL			

Controller of Stores & Purchase For and on behalf of CSIR-NAL