

**PROCEEDINGS OF THE PRE-BID CONFERENCE HELD ON 25-May-2022 THROUGH WEBEX TOWARDS DESIGN, SUPPLY, INTEGRATION, INSTALLATION AND COMMISSIONING OF SERVO-HYDRAULICALLY OPERATED CONTROL LOADING SYSTEM FOR AIRCRAFT IRON BIRD APPLICATIONS.**

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

Sl. No.	Name & Designation		Role
1	Dr. M. Manjuprasad	Chief Scientist, STTD	Chairman
2	Mr. J. Ramaswamy Setty	Sr. Principal Scientist, ACD	Member
3	Mr. Dilip Kumar Sahu,	Sr. Technical Officer-2, CAD	Member
4	Mr. Vineet Kumar	Chief Scientist, CAD	PD-SARAS Member
5	Dr. Abhay Pashilkar	Chief Scientist, FMCD	Prog- Director Member
6	Dr. C.M. Manjunatha	Chief Scientist, SID	Specialist Member
7	Dr. Giresh Kumar Singh	Chief Scientist, FMCD	Specialist Member
8	Mr. Baskar Rao Mattapally	Principal Scientist, STTD	Member - Convener (TSC)

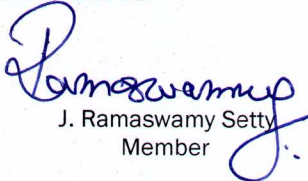
The list of Prospective bidders who attended the Pre-bid Conference is as per Annexure-I.

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 thereto as detailed in Annexure-II (Part A: Technical Clarification and Part B: Commercial Clarification, if any).

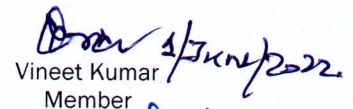
The representatives present were satisfied with the replies given and it was informed that the corrections / additions / clarifications given, as discussed during the Pre-Bid Conference would be hosted on the website of CSIR-NAL and all prospective bidders are required to take cognizance of the proceedings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

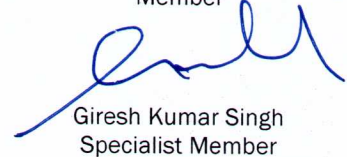
  
J. Ramaswamy Setty  
Member

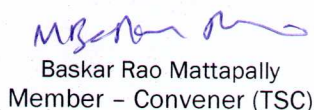
  
Dilip Kumar Sahu  
Member

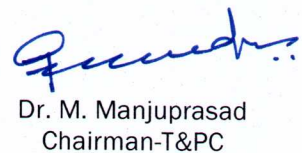
  
Vineet Kumar  
Member

  
Dr. Abhay Pashilkar  
Member

  
C.M. Manjunatha  
Specialist Member

  
Giresh Kumar Singh  
Specialist Member

  
Baskar Rao Mattapally  
Member - Convener (TSC)

  
Dr. M. Manjuprasad  
Chairman-T&PC

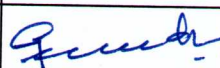
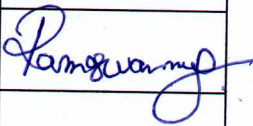

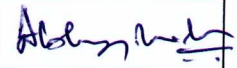


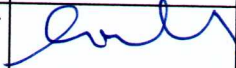

CSIR-NATIONAL AEROSPACE LABORATORIES  
BENGALURU - 560 017

TENDER NO.: NAL/PUR/STTD/478/21-Z  
DATE & TIME : 25-May-2022 @ 11:00 AM  
VENUE: THROUGH WEBEX

ANNEXURE - I

Pre-Bid Conference for Design, Supply, Integration, Installation and Commissioning of Servo-Hydraulically Operated Control Loading System for Aircraft Iron Bird Applications

ATTENDANCE SHEET - T&PC MEMBERS

Sr. No.	Name		Signature
1	Dr. M. Manjuprasad, Chief Scientist, STTD	Chairman	
2	Mr. J. Ramaswamy Setty, Sr. Principal Scientist, ACD	Member	
3	Mr. Dilip Kumar Sahu, Sr. Technical Officer-2, CAD	Member	
4	Dr. Abhay Pashilkar, Chief Scientist, FMCD	Member	
5	Mr. Vineet Kumar, Chief Scientist, CAD	Member	 25/may/2022
6	Dr. C.M. Manjunatha, Chief Scientist, SID	Specialist-Member	
7	Dr. Giresh Kumar Singh, Chief Scientist, FMCD	Specialist-Member	
8	Mr. Baskar Rao Mattapally, Principal Scientist, STTD	Member- Convenor - TSC	



**NATIONAL AEROSPACE LABORATORIES  
BENGALURU - 560 017**

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ANNEXURE - I

**Pre-Bid Conference for Design, Supply, Integration, Installation and Commissioning of Servo-Hydraulically Operated Control Loading System for Aircraft Iron Bird Applications**

**ATTENDANCE SHEET - PROSPECTIVE BIDDERS**

Sr. No.	Name of the Firm	Name & Designation of Representative	E-tender Registration (Yes/No)	Email ID
1	MTS Testing Solutions India Pvt. Ltd., Unit 201-202, 02nd Floor, Donata Radiance, Krishna Nagar Industrial Layout, Koramangala, Bengaluru 560 029	Sathish KM. Sales Head; Terence Miranda. Sales; Roshni Thomas. Application Engineer; Arjun S Sales Manager (FAM)	Yes	sathish.km@mts.com, terence.miranda@mts.com, roshni.thomas@mts.com, arjun.somana@mts.com
2	Servocontrols & Hydraulics India Pvt Ltd (An ISO9001-2015 Co) Sy. No. 683, Industrial Estate, Udyamabag, Belgaum, Karnataka-590008	N P Shrinivas – Sr. Manager – Marketing Deepak Dhadoti – CMD, Vijay Prabhu – Manager (Projects )	Yes	<a href="mailto:Shrinivas.np@servocontrolsindia.com">Shrinivas.np@servocontrolsindia.com</a> <a href="mailto:Deepak@servocontrolsindia.com">Deepak@servocontrolsindia.com</a> <a href="mailto:vijayprabhu@servocontrolsindia.com">vijayprabhu@servocontrolsindia.com</a>
3	MOOG India Technology Center, Plot 1, 2 & #, Electronics City Phase1, Bangalore – 560100	D. Krishna Mohan, Director Customer Support	Yes	<a href="mailto:dmohan@moog.com">dmohan@moog.com</a>
4	Moog Motion Controls Private Limited Latitude Building Site No. 42, 43, Doraisanipalya Village Bilekahalli, Begur Hobli Bengaluru 560076, Karnataka, INDIA	Vasuki. H- Engineering Head, Arularasan T- Manager Engineering Manav B G- Manager Sales	Yes	<a href="mailto:mgangadhar@moog.com">mgangadhar@moog.com</a>
5				

*M. K. Sathish*  
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**CSIR-NATIONAL AEROSPACE LABORATORIES  
BENGALURU**

**TECHNICAL QUERIES & CLARIFICATION**

Tender No. : NAL/PUR/STTD/478/21-Z  
Item Description : Design, Supply, Integration, Installation and Commissioning of Servo-Hydraulically Operated Control Loading System for Aircraft Iron Bird Applications.

Sr. No.	Query / Clarification Sought Column 1	Clarification/Amendment Column 2								
1	<p>Sec: 4.2.2.3- Point 1- (VI) <b>Must have total length of actuator with one swivel base less than 675 mm</b></p> <p>Vendors expressed concern on the specified maximum allowable actuator length. And requested CSIR-NAL to increase the value of maximum allowable actuator length so that COTS actuators can be included in bids.</p>	<p>Sec: 4.2.2.3- Point 1- (VI) is amended as: <b>The maximum allowable actuator length is increased to 850 mm in fully extended condition</b></p>								
2	<p>Sec: 4.2.2.3- Point 7- Note I the controller shall ensure the maximum % error between commanded and actual load profiles shall be within <math>\pm 3\%</math> between commanded and actual load during testing at any operating point at maximum loading capacity (+2.5kN to 5kN &amp; -2.5kN to -5kN) and <math>\pm 5\%</math> between commanded and actual load during testing at any operating point for the minimum loading capacity (0 to <math>\pm 2.5</math>kN).</p> <p>Vendors expressed concern on meeting actuator load simulation accuracy in the lower force ranges and requested CSIR-NAL to revise the accuracy criteria.</p>	<p>Sec: 4.2.2.3- Point 7- Note I is amended as: <b>The Actuator load simulation accuracy criteria has been updated as mentioned below</b></p> <table><tr><th>Actuator Load</th><th>Required accuracy</th></tr><tr><td>0 to 100 N</td><td><math>\pm 10</math> N</td></tr><tr><td>100 N to 1000 N</td><td><math>\pm 10</math> N (or) maximum percentage error <math>\leq \pm 5\%</math>; whichever is higher</td></tr><tr><td>1000 N to 5000 N</td><td><math>\pm 50</math> N (or) maximum percentage error <math>\leq \pm 3\%</math>; whichever is higher</td></tr></table>	Actuator Load	Required accuracy	0 to 100 N	$\pm 10$ N	100 N to 1000 N	$\pm 10$ N (or) maximum percentage error $\leq \pm 5\%$ ; whichever is higher	1000 N to 5000 N	$\pm 50$ N (or) maximum percentage error $\leq \pm 3\%$ ; whichever is higher
Actuator Load	Required accuracy									
0 to 100 N	$\pm 10$ N									
100 N to 1000 N	$\pm 10$ N (or) maximum percentage error $\leq \pm 5\%$ ; whichever is higher									
1000 N to 5000 N	$\pm 50$ N (or) maximum percentage error $\leq \pm 3\%$ ; whichever is higher									
3	<p>Sec: 4.2.2.3- Point 6&amp;8 Vendor enquired about Cables and Hydraulic lines routing</p>	<p>Clarification: Majority lengths of the cables &amp; hoses shall be routed through trenches; only minor portion of the lengths can be routed on the iron bird frame in the connecting zone of actuators</p>								
4	<p>Sec: 4.2.2.3- Point 4 Vendor enquired about Hydraulic service manifold.</p>	<p>Clarification: This is required to protect the specimen, test system in the event of abnormal loading condition by quickly dumping the hydraulic pressure applied to the system.</p>								

Sr. No.	Query / Clarification Sought Column 1	Clarification/Amendment Column 2
5	Sec: 4.2.2.3- Point 5 Vendor enquired about Hydraulic Distribution Manifold quantity requirement.	Clarification: Quantity 2 required to have distribution manifolds at wing location and at the rudder location. 3 Number of Additional channels are meant for future requirements.
6	Sec: 4.2.2.3- Point 5 Vendor enquired about need of return line accumulator	Clarification: Bidder shall design the accumulators based on system design requirements
7	Sec: 4.2.2.3- Point 6-III Vendor enquired about need of connecting hoses from HDM to HDM	Clarification: As these two HDMs are placed in different places it is required to connect them
8	Sec: 4.2.2.1 Vendor enquired about whether control stick is required to have a feature like predefined stop / position / detent position	Clarification: Control stick /wheel/ Pedals (pilot controls) are connected mechanically to their respective control surfaces. Travel of the pilot controls is restricted to within the defined limits. As they are mechanically connected with the control surfaces, the resultant force of pilot and hinge moments decide their position during the flying. And stick has predefined stop position.
9	Sec: 4.2.2.3- Point 5 Vendor enquired about Load cell cable quantity	Clarification: Quantity 10 Required
10	Sec: 4.2.2.3- Point 10 Vendor enquired about requirement of two computers with same operating system	Clarification: The standard Server-Client Architecture is required as per the tender document. The server PC will host all the softwares meant for the rig operation and will be interacting with the Test rig. Whereas, Client PC (interacts with Server PC) is meant for external data transfer.
11	Sec: 4.2.2.1 Fig 3 Vendor enquired about the type of Realtime controller RTOS (6 DOF) built in to accept the UDP /analog surface position sensor as an input.	Clarification: NI RT-Linux based RTOS  NI- National Instruments RT- Real Time
12	Sec: 4.2.2.1 Fig 2 Vendor enquired about the scope of angle sensor for measuring the control surface deflection & feedback to RTOS	Clarification: It is in the scope of CSIR-NAL
13	Sec: 4.7.4 First Line to be conducted seven months after order placement.  Vendor requested to clarify on Installation, Commissioning and Acceptance Tests , which is contradicting (Sec: 4.10)	Amendment: Sec 4.7.4 First line to be conducted 9 months after order placement or as per the Sec: 4.10).

Note: where ever Column 2 mentions amendment, Bidder shall necessarily quote as per amended specification.

Signature of IO & PL

*MBK*  
IO

*Abhyant*  
(PL)



**CSIR-NATIONAL AEROSPACE LABORATORIES  
BENGALURU**

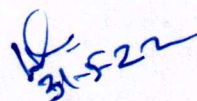
**COMMERCIAL QUERIES & CLARIFICATION**

**Tender Id** : 2022\_CSIR\_115680\_1

**Tender No.** : NAL/PUR/STTD/478/21-Z

**Item Description** : Design, Supply, Integration, Installation and Commissioning of Servo-Hydraulically operated Control Loading System for Aircraft Iron Bird applications

Sr. No.	Query / Clarification Sought	Clarification
1	EMD Amount: Rs.7,50,000/- [Rupees Seven Lakh Fifty Thousand Only]  (OR) Bidder is claiming exemption as per provisions specified in the Tender document then the bidder has to furnish/submit BID SECURING DECLARATION as per FORMAT specified in Chapter-8, Annexure-B.	Bidder can submit EMD of Rs.7,50,000/- as specified in the tender document in the form of Bank Guarantee or Demand Draft.  <b>OR</b>  Bidder has to furnish/submit BID SECURING DECLARATION as per FORMAT specified in Chapter-8, Annexure-B.  The Bid Security Declaration in the name of "The Director, National Aerospace Laboratories, Bengaluru" to be part of the Technical Bid, without which the bid is liable to be rejected
The other terms and conditions mentioned in the tender documents remains unaltered.		

  
Sr. Controller of Stores & Purchase  
For and behalf of CSIR