



National Aeronautics and Space Administration
John H. Glenn Research Center (GRC)
Lewis Field
Cleveland, OH 44135

Combination Synopsis / Solicitation NNC13470101Q
Released on 04/18/2013

This notice is a combined synopsis/solicitation for commercial items prepared in accordance with the format in FAR Subpart 12.6, as supplemented with additional information included in this notice. This announcement constitutes the only solicitation; offers are being requested and a written solicitation will not be issued.

This notice is being issued as a Request for Quotations (RFQ) for Linear Friction Welding (LFW) services. The Government is seeking an Indefinite-Quantity type order for a fixed period of one (1) year. There will be a minimum guarantee of eight (8) trial welding samples.

The provisions and clauses in the RFQ are those in effect through FAC 2005- 66.

This procurement is a total small business set-aside.

The NAICS Code and the small business size standard for this procurement are 333992, number employees is 500 respectively. The offeror shall state in their offer their size status for this procurement.

All responsible sources may submit an offer which shall be considered by the agency.

Deliveries will be to NASA Glenn Research Center (GRC) delivery schedule will be established after award. Any deliveries shall be FOB Destination.

Offers for the items(s) described above are due by Tues April 30, 2013 at 5:00PM EST via email to Joseph C. Dorsey (joseph.c.dorsey@nasa.gov) and must include, solicitation number, proposed delivery schedule, discount/payment terms, warranty duration (if applicable), taxpayer identification number (TIN), identification of any special commercial terms, and be signed by an authorized company representative. Late submissions will not be accepted unless authorized by the Contracting Officer. Offerors are encouraged to use the Standard Form 1449, Solicitation/Contract/Order for Commercial Items form found at URL:
<http://server-mpo.arc.nasa.gov/Services/NEFS/NEFSHome.tml>

Offerors shall provide the information required by FAR 52.212-1 (FEB 2012), Instructions to Offerors-Commercial Items, which is incorporated by reference.

If the end product(s) offered is other than domestic end product(s) as defined in the clause entitled "Buy American Act -- Supplies," the offeror shall so state and shall list the country of origin.

FAR 52.212-4 (FEB 2012), Contract Terms and Conditions-Commercial Items is applicable.

FAR 52.212-5 (AUG 2012), Contract Terms and Conditions Required To Implement Statutes or Executive Orders-Commercial Items is applicable and the following identified clauses are incorporated by reference:

FAR 52.204-10 (AUG 2012) REPORTING EXECUTIVE COMPENSATION AND FIRST-SUBCONTRACTOR AWARDS



FAR 52.209-6 (DEC 2010) PROTECTING THE GOVERNMENT'S INTEREST WHEN SUBCONTRACTING WITH CONTRACTORS DEBARRED, SUSPENDED, OR PROPOSED FOR DEBARMENT

FAR 52.209-10 (MAY 2012) PROHIBITION OF CONTRACTING WITH INVERTED DOMESTIC CORPORATIONS

FAR 52.219-6 (NOV 2011) NOTICE OF TOTAL SMALL BUSINESS SET-ASIDE

FAR 52.219-13 (NOV 2011) NOTICE OF SET-ASIDE OF ORDERS

FAR 52.219-28 (APR 2012) POST AWARD SMALL BUSINESS PROGRAM REREPRESENTATION

FAR 52.222-3 (JUN 2003) CONVICT LABOR

FAR 52.222-19 (MAR 2012) CHILD LABOR – COOPERATION WITH AUTHORITIES AND REMEDIES

FAR 52.222-21 (FEB 1999) PROHIBITION OF SEGREGATED FACILITIES

FAR 52.222-26 (MAR 2007) EQUAL OPPORTUNITY

FAR 52.222-36 (OCT 2010) AFFIRMATIVE ACTION FOR WORKERS WITH DISABILITIES

FAR 52.222-50 (FEB 2009) COMBATING TRAFFICKING IN PERSONS

FAR 52.223-18 (AUG 2011) ENCOURAGING CONTRACTOR POLICIES TO BAN TEXT MESSAGING WHILE DRIVING

FAR 52.225-1 (SEPT 2009) BUY AMERICAN ACT—SUPPLIES

FAR 52.225-13 (JUN 2008) RESTRICTIONS ON CERTAIN FOREIGN PURCHASES

FAR 52.232-33 (OCT 2003) PAYMENT BY ELECTRONIC FUNDS TRANSFER--CENTRAL CONTRACTOR REGISTRATION

OTHER FAR CLAUSES INCORPORATED BY REFERENCE

FAR 52.204-7 (DEC 2012) CENTRAL CONTRACT REGISTRATION

FAR 52.211-11 (SEPT 2000) LIQUIDATED DAMAGES – SUPPLIES, SERVICES, OR RESEARCH AND DEVELOPMENT

FAR 52.217-5 (JUL 1990) EVALUATION OF OPTIONS

FAR 52.227-14 (DEC 2007) RIGHTS IN DATA - GENERAL

CLAUSES INCORPORATED BY FULL TEXT

FAR 52.216-22 (OCT 1995) INDEFINITE QUANTITY

(a) This is an indefinite-quantity contract for the supplies or services specified, and effective for the period stated, in the Schedule. The quantities of supplies and services specified in the Schedule are estimates only and are not purchased by this contract.

(b) Delivery or performance shall be made only as authorized by orders issued in accordance with the Ordering clause. The Contractor shall furnish to the Government, when and if ordered, the supplies or services specified in the Schedule up to and including the quantity designated in the Schedule as the "maximum." The Government shall order at least the quantity of supplies or services designated in the Schedule as the "minimum."



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(c) Except for any limitations on quantities in the Order Limitations clause or in the Schedule, there is no limit on the number of orders that may be issued. The Government may issue orders requiring delivery to multiple destinations or performance at multiple locations.

(d) Any order issued during the effective period of this contract and not completed within that period shall be completed by the Contractor within the time specified in the order. The contract shall govern the Contractor's and Government's rights and obligations with respect to that order to the same extent as if the order were completed during the contract's effective period; provided, that the Contractor shall not be required to make any deliveries under this contract after the one (1) year period of performance from date of award.

(End of Clause)

FAR 52.217-8 (NOV 1999) OPTION TO EXTEND SERVICES

The Government may require continued performance of any services within the limits and at the rates specified in the contract. These rates may be adjusted only as a result of revisions to prevailing labor rates provided by the Secretary of Labor. The option provision may be exercised more than once, but the total extension of performance hereunder shall not exceed 6 months. The Contracting Officer may exercise the option by written notice to the Contractor within 15 days.

(End of Clause)

FAR 52.217-6 (MAR 1989) OPTION FOR INCREASED QUANTITY

The Government may increase the quantity of supplies called for in the Schedule at the unit price specified. The Contracting Officer may exercise the option by written notice to the Contractor within 5 days. Delivery of the added items shall continue at the same rate as the like items called for under the contract, unless the parties otherwise agree.

(End of Clause)

**NASA FAR SUPPLEMENT (NFS) Incorporated by reference
1852.245-72 (JAN 2011) LIABILITY FOR GOVERNMENT PROPERTY FURNISHED FOR REPAIR
OR OTHER SERVICES**

The FAR may be obtained via the Internet at URL: <http://www.acquisition.gov/far/index.html>

The NFS may be obtained via the Internet at URL:
<http://www.hq.nasa.gov/office/procurement/regs/nfstoc.htm>

This will be an Indefinite-Quantity type order. Upon award the Government will establish a Not to Exceed (NTE) amount for the order. Vendors are expected to price out all non-recurring costs (e.g. Set-up, tooling, etc...) associated with the base requirement as stated in the statement of work (SOW). The Government reserves the right to increase the quantity of items throughout the one (1) year period of performance. The total minimum quantity, guaranteed by the Government is a request for the vendor to weld 8 trial samples. The vendor must submit a pricing schedule for all anticipated recurring cost for



future orders up to the one year Period of Performance. Any quantitative discounts must be addressed in the vendor's pricing. Future orders will be awarded on a firm fixed price basis.

All work performed under this contract shall be in compliance with all applicable Federal, State, and Local environmental regulations and those policies set forth in the NASA Glenn Research Center's Environmental Programs Manual.

All contractual and technical questions must be in writing via e-mail to Joseph Dorsey not later than Thursday April 25, 2013 at 12:00PM EST. Telephone questions will not be accepted. This procurement is for the purchase of linear friction welding services, with the option to purchase additional welds up to a one (1) year period. For quote evaluation purposes, the Government will evaluate fixed cost of additional orders. The Government may determine that an offer is unacceptable if this pricing is determined to be significantly unbalanced.

Selection and award will be made to the offeror whose offer will be most advantageous to the Government, with consideration given to the factors of proposed technical merit, past performance, and price. This means that award will be conducted on a BEST VALUE basis. It is critical that offerors provide adequate detail to allow evaluation of their offer.

The following factors will be used to evaluate offerors:

- 1) Technical Merit – Ability to comply with the proposed services described in the Statement of Work (SOW). Offerors understanding of the requirements and ability to adhere to any and all material and process requirements.
- 2) Past Performance – The ability of the offeror to show their relative past performance, preferably 5 years or more, in relation to Linear Friction Welding services of similar type. This past performance should include a history of services provided and work done for multiple professional organizations (minimum of 2 and no more than 5). References are appreciated.
- 3) Price/Cost – The ability of the offeror to provide a fair and reasonable price.

Offerors must include completed copies of the provision at 52.212-3 (APR 2012), Offeror Representations and Certifications - Commercial Items with their offer. The provision may be obtained via the internet at URL: http://farsite.hill.af.mil/reghtml/regs/far2afmcfars/fardfars/far/52_000.htm. These representations and certifications will be incorporated by reference in any resultant contract.

NASA Clause 1852.215-84 (NOV 2011), Ombudsman, is applicable. The Center Ombudsman for this acquisition can be found at http://prod.nais.nasa.gov/pub/pub_library/Omb.html.

Prospective offerors shall notify this office of their intent to submit an offer. It is the offeror's responsibility to monitor the following Internet site for the release of solicitation amendments (if any): <http://prod.nais.nasa.gov/cgi-bin/eps/bizops.cgi?gr=D&pin=22> . Potential offerors will be responsible for downloading their own copy of this combination synopsis/solicitation and amendments (if any).

Any referenced notes may be viewed at the following URLs linked below.



Linear Friction Welding Services Statement of Work (SOW)

1.0 Introduction

1.1. The NASA Glenn Research Center (GRC) is seeking an Indefinite-Quantity type order with fixed pricing for Linear Friction Welding (LFW) Services. The services provided will aid NASA GRC in conducting an initial study into the feasibility of joining dissimilar nickel base superalloys using LFW. The study will focus on demonstrating process feasibility and generating weld samples for analysis. Analysis will be performed by NASA and is not included in the scope of the services to be provided.

1.2. The materials to be welded are GRC-developed superalloys that have been designed for turbine disk applications. They are the Low Solvus High Refractory (LSHR) powder metallurgy alloy which will be welded to the LDS (Low Density Single Crystal)-1101+Hf single crystal alloy.

1.3. Weld samples will be cylindrical. They will be nominally 0.5-inches in diameter and 2.5-inches in length. Surfaces will be prepared for welding by NASA prior to delivery.

1.4. NASA will provide a test plan that will include welding parameters to be used during this study.

1.5. NASA is requesting a quotation for welding 8 initial trial samples.

1.6. NASA is also requesting quotations for options to weld additional samples following analysis of the initial 8.

2.0 Services to be Provided

2.1. The supplier shall provide engineering support to NASA to establish the welding parameters and test weld matrix. NASA will generate a test plan based on this engineering support.

2.2. The supplier shall provide all tooling, equipment, and manpower necessary to perform welding. All materials to be welded will be provided by NASA.

2.3. The supplier shall notify NASA five working days in advance of all welding trials, and shall allow two NASA personnel to witness all welding trials in person.

2.4. The supplier shall perform 8 initial weld trials of LSHR to LDS to form dissimilar weld samples. Additional welds may be performed if contract options are initiated. See quote instructions in Section 4.

2.5. NASA intends to provide cylindrical weld samples 2.50 +/- 0.010 inches in length and 0.500 +0.005/-0.000 inches in diameter. Following initial trials NASA intends to cut out the weld and re-weld the opposite end of the samples. Therefore, to the greatest extent possible the finish of the



opposite end of all samples should be preserved during initial trials. Following cutting it is anticipated that sample lengths will be reduced to approximately 2.0 inches. This should be taken into consideration when designing tooling for this application.

2.6. NASA will provide up to 20 steel or stainless steel samples with the geometry specified in 2.5 that can be used to validate tooling and equipment operation prior to attempting welds of LDS to LSHR.

2.7. During welding the LSHR alloy shall be held fixed and the LDS alloy oscillated.

2.8. Orientation of the LDS single crystal alloy relative to the oscillation direction is critical. Therefore, the samples will be delivered with an orientation mark that will be used to orient the crystal parallel to the oscillation direction. The supplier shall ensure oscillation parallel to the requested crystal orientation before each weld trial is performed.

2.9. Both alloys are susceptible to oxidation at welding temperatures. Therefore, the supplier shall provide argon inert gas shielding of the weld joint. This should be done using a shielding apparatus that encapsulates the weld samples.

2.10. It is anticipated that real time modifications to the test plan may be necessary during welding trials. The supplier shall receive NASA concurrence before deviating from the test plan.

2.11. The supplier shall document all welding trial input parameters, process feedback, observations, and any photo and/or video data.

2.12. At minimum the following output signals shall be recorded and documented; forge load, forge position, oscillator load, and oscillator position.

3.0 Deliverables

3.1. The supplier shall deliver all weld coupons, as well as any unwelded samples, to NASA Glenn Research Center.

3.2. The supplier shall deliver all process data, including input parameters, process data files, notes taken on welding trails, and any photos or video to NASA. This information should be delivered with samples.

4.0 Quotation Instructions

4.1. Provide formal firm fixed quotes that address the services and deliverables identified above.

4.2. Make the quotes valid for 120 days.

4.3. Provide schedule milestone assumptions including a) time from contract award to the start of welding, and b) duration of welding trials.



4.4. The contractor shall list out and provide separate pricing for any non-recurring tooling or equipment costs.

4.5. Provide a quote for recurring costs associated with performing 8 initial trial weld specimens. This should include all manpower and consumable costs.

4.6. Provide pricing for recurring costs associated with welding additional specimens, the Government reserved the right to request additional welds at any time. These welds may be performed after the initial 8 specimens have been analyzed by NASA. After award there shall be a not to exceed amount established for specimen request up to a one year period. Vendors are expected to complete the provided pricing schedule to establish pricing for the required and any possible future orders. The Government will utilize the pricing sheet to place all (if any) future orders.

5.0 Period of Performance

Period of performance for the above work will be twelve (12) months from date of award