

FLEET/00463 – Schedule of Requirements for the procurement of an Optical Profilometer for 1710 Naval Air Squadron (1710 NAS) Portsmouth

1. Introduction.

- 1.1. The Structural Materials Investigation (SMI) section at 1710 Naval Air Squadron (1710 NAS) conducts failure analysis on flight safety/operational critical components and systems across the whole range of Naval Command assets. In addition the section provides the scientific input to MilAAIB investigations. An essential part of these processes is the capability to perform precision measurements of component dimensions and surfaces including:
 - a. Fracture surfaces.
 - b. Screw threads.
 - c. Surface roughness.
 - d. Scoring depth and overlap.
 - e. Tooling marks.
- 1.2. A number of analytical capability shortfalls have been identified within the SMI section at 1710 NAS. The existing equipment is inadequate for the precision measurement of dimensions and surfaces on Navy Command (NC) platform components that are the subject of 1710 NAS investigative work
- 1.3. The functional specification of the optical profilometer is as follows.

2. Hardware.

- 2.1. The instrument must be capable of accepting samples measuring up to 200mm x 200mm x 200mm and weighing up to 40kg.
- 2.2. A method of scanning regions of interest at an angle to the normal working plane of the instrument must be provided. The method used to achieve this requirement must be stated in the returned tender documentation.
- 2.3. The instrument must include the means to check the calibration of the optical system. The method used to achieve this requirement must be stated in the returned tender documentation.
- 2.4. All items supplied must be CE marked and comply with the Provision and Use of Work Equipment Regulations where appropriate.
- 2.5. Any items to be supplied that are classified as consumable must be identified as such and a typical replacement cost and annual usage rate given. Instrument is to be supplied with and initial issue of Consumable items sufficient for 1 year of operation.
- 2.6. If further quantities of any consumables are required during the remaining Contract duration (Years 2 to 5 inclusive) they will be ordered by 1710 NAS using the Call Off Form at Annex A to the SOR. The description of these parts, part numbers, anticipated annual usage and unit costs are to be detailed in a **tenderer produced pricing table** which is to be referenced as an **Annex - Consumables** and form part of the returned tender documentation.

3. Analytical Capability.

- 3.1. The instrument will be required to produce surface scans with vertical and horizontal resolutions in the order of 1nm and 500nm respectively. The typical degree of accuracy achievable by the equipment should be stated in the returned tender.
- 3.2. The system objective lenses must allow scans to be taken from the base of features 25mm wide x 25mm deep and allow angle measurements to be taken from surfaces at least 65° from the normal plane.

- 3.3. Scan/image capture and stitching must be provided within the software. Any limitations on the stitched image size must be stated in the tender. Captured images must be exportable for use in other software, returned tenders must state the supported image export formats.
- 3.4. The instrument must be capable of producing 3D representations of all scans and stitched images.
- 3.5. The 3D information produced by scans must be exportable to a point cloud file or other 3D definition format, returned tenders must state the supported formats.
- 3.6. The instrument must include the ability to measure features such as diameters, lengths and angles from the scans produced. The typical degree of accuracy achievable against these parameters is to be stated in the returned tender.
- 3.7. The instrument must produce surface roughness measurements to ANSI B46.1 or equivalent.
4. Accessories/Utility Requirements
 - 4.1. Tenders must specify all services required for the operation of the instrument including gasses, compressed air and electrical supply. It is anticipated that the equipment will be operated from a single phase, 240 volt power supply preferably running from a 13 Amp domestic supply.
 - 4.2. Any fitting kits or adapters required for the installation of the instrument or connection to the required services must be included in the returned tender.
5. Bench
 - 5.1. For bench top instruments the minimum size and load bearing capacity (including the instrument and sample weight) of bench required must be stated. If an approved bench is available it should be included in the returned tender as a costed option.
6. Software.
 - 6.1. Any computer system required to control the instrument must be included in the tender.
 - 6.2. Any computer supplied must use the Windows 7 Professional operating system and be equipped with a network interface card to allow data storage on the 1710NAS network.
 - 6.3. The application software used to operate the instrument must be able to run from an ordinary (restricted) windows user account.
 - 6.4. The application software supplied must be able to run on a computer other than the instrument control computer to allow subsequent offline data interpretation and reprocessing. The required computer system specification and any software licensing limitations affecting offline data processing must be stated in the returned tender.
7. Support.
 - 7.1. Tenders must include a description and scope of the warranty offered in year 1 and the cost of a comprehensive extended support element to the contract for years 2, 3, 4,& 5 which is to be inclusive of but not limited to replacement parts, labour, travel costs etc. but excluding consumable items. Any items not covered by the warranty or service contract element must be clearly specified in the returned tender.
 - 7.2. Any visits required for preventive maintenance or calibration activity must be included in the warranty/service contract and the frequency of such visits must be stated in the returned tender.
 - 7.3. A 24 hour fault reporting service must be available with on site attendance within 3 working days from the initial fault report, the tenderer is to specify the nature of the fault reporting service and how faults are to be reported i.e. dedicated phone line or email address etc.
 - 7.4. Updates to the instrument software and firmware shall be supplied as they become available for the duration of the 5 year contract term.

8. Training

- 8.1. The tender must include the cost of the initial on-site training for a minimum of two operators to include all of the instrument functions.
- 8.2. The cost of further user training should it become necessary is to be provided, if further training is required during the 5 year contract term this will be ordered by 1710 NAS using the Call Off Form at Annex A to the SOR. The content /scope of the further user training is to be described and priced within a **tenderer produced pricing table** which is to be referenced as an **Annex – Additional Training** and form part of the returned tender documentation.

9. Analytical Support

- 9.1. During the course of the first years operation of the equipment analytical support may be required until the trained staff become more familiar with the operating techniques of the equipment, the cost if any of this support is to be included within the equipment cost in the first year of operation.
- 9.2. The cost of further analytical support should it be required is to be provided, in the event that if additional analytical support is required during the remaining 4 years of the contract term it will be ordered by 1710 NAS using the Call Off Form at Annex A to the SOR. The content/scope of the further Analytical Support is to be described and priced within a **tenderer produced pricing table** which is to be referenced as an **Annex – Additional Analytical Support** and form part of the returned tender documentation.

10. Delivery, Installation and Commissioning.

- 10.1 The expected lead time from Contract acceptance to delivery on site shall be stated in the returned tender.
- 10.2 The instrument shall be supplied with all manuals, tools and spares required for normal use and user maintenance.
- 10.3 Installation and commissioning of the instrument will be the responsibility of the supplier or their representatives. Equipment cost shall be inclusive of delivery, installation and commissioning.