Contract

Supply and Installation of a 1.8 to 300 K Cryostat to the University of Birmingham

UNIVERSITY OF BIRMINGHAM

F03: Contract award notice
Notice identifier: 2021/S 000-014384
Procurement identifier (OCID): ocds-h6vhtk-02881e
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Section I: Contracting authority

I.1) Name and addresses

UNIVERSITY OF BIRMINGHAM

Chancellors Court,Edgbaston

BIRMINGHAM

B152TT

Contact

Susanna Ting

Email

s.y.ting@bham.ac.uk

Country

United Kingdom

NUTS code

UKG - West Midlands (England)

Internet address(es)

Main address

https://www.birmingham.ac.uk/index.aspx

I.4) Type of the contracting authority

Body governed by public law

I.5) Main activity

Education

Section II: Object

II.1) Scope of the procurement

II.1.1) Title

Supply and Installation of a 1.8 to 300 K Cryostat to the University of Birmingham

Reference number

SC8828/21

II.1.2) Main CPV code

- 38000000 - Laboratory, optical and precision equipments (excl. glasses)

II.1.3) Type of contract

Supplies

II.1.4) Short description

The University of Birmingham invited tenders for supply of a variable temperature cryostat system, for carrying out experiments in condensed matter physics. The cryostat should be able to maintain any temperature between 1.8 and 300 K. Extra points will be

awarded for guaranteed temperatures below 1.8 K. The cryostat system should contain a superconducting magnet that can apply fields of up to 12 T, of either polarity. There should be a radiation shield between the sample space and the magnet, so that the magnet remains superconducting and able to apply a field of 12 T even when the sample space is held at a temperature of 300 K; this radiation shield is in general the defining feature of a variable temperature system. The tenderer should supply a power supply for this magnet.

The system is to be a dry system, that is, it should operate without replenishment of any cryogenic liquids. The tenderer is expected to offer all of the pumps, compressors, reservoirs, and filters necessary for operation of such a system.

The tenderer should pay particular attention to the sample space requirements, which are larger than for typical transport measurements.

The system should include three measurement inserts: a standard insert, a sample-in vacuum insert, and a helium-3 insert. The helium-3 insert is intended to allow temperatures down to 0.3 K.

Overall budget for this item is up to £280,000.00, excluding VAT.

The tenderer should also specify an option for reaching £400K, excluding VAT (in separate quotations).

This project may be funded by the European Regional Development Fund (ERDF) or;

- European Structural and Investment Fund (ESIF) or;

- Research Councils UK (RCUK), the strategic partnership of the UK's seven Research Councils.

II.1.6) Information about lots

This contract is divided into lots: No

II.1.7) Total value of the procurement (excluding VAT)

Value excluding VAT: £248,000

II.2) Description

II.2.3) Place of performance

NUTS codes

- UKG - West Midlands (England)

II.2.4) Description of the procurement

The University of Birmingham invites tenders for supply of a variable temperature cryostat system, for carrying out experiments in condensed matter physics. The system is to be provided with the pumps, compressors, filters, and reservoirs necessary for its operation. A magnetic power supply is to be provided. Three measurement inserts are to

be provided: a standard (that is, sample-in-exchange-gas) insert, a sample-in-vacuum

insert, and a 3-helium insert.

Specification

i. Magnet

1) A field range of +12 T, for sample temperatures over the entire specified range.

2) A minimum field homogeneity of +0.1% over a 1 cm diameter about the field centre.

3) Ramping from 0 T to +12 T or -12 T should take an hour or less.

4) The time to cool the magnet from 300 K to its operating temperature should be specified.

5) The magnet should include a persistence mode.

6) Information should be provided on the type of magnet wire that will be used, and, if available, expected hysteresis.

ii. Magnet power supply

7) The current resolution and stability of the magnet power supply should be specified.

iii. Variable temperature insert (VTI)

8) The temperature range must be at least 1.8 to 300 K.

9) The temperature sensor type, the source of its calibration, and its location should be specified.

10) The cool-down time from 300 K to 1.8 K should be specified, under an assumption that the magnet is already at its operating temperature.

11) The termination at the top of the variable temperature insert should be specified; a KF 50 flange is preferred.

12) A description of the operation of the VTI and magnet, including a diagram of the cooling circuit, should be provided. The process by which

measurement inserts are exchanged should be described, with particular emphasis on requirements, if there are any, for purity of gas that is

introduced into the sample space. It should be specified whether a liquid nitrogen cold trap is necessary for operation of the cooling circuit.

Maintenance and replacement schedules for parts required for operation of the cooling circuit should also be specified. The tenderer may also provide any further information pertinent to the long-term reliability and ease-of use of their system.

13) It is desirable that the gas pressure in the sample space can be varied; please specify if this is possible and if so how.

14) Sample space diameter of 50 mm or more.

iv. General-purpose measurement insert

15) 12 manganin twisted pairs.

16) At least one free KF16 or KF25 flange, to allow user installation of additional

wiring. Two free flanges are desirable. (Here and on the other inserts: we anticipate running six coaxial lines, which may be flexible. If the supplier can provide inserts with these coaxial cables already installed, we will consider it, but it will not be a major factor in our decision. Flexibility to install additional cables of our own is important.)

17) A free sample space of at least 70 mm below the field centre, and 120 mm above, with a diameter of at least 44 mm. Note that these are the same requirements as for the sample-in-vacuum insert. Note also that we are not looking for the supplier to provide specific solutions on sample mounting. We will manage this ourselves; what we want is flexibility.

v. Sample-in-vacuum measurement insert

18) 12 manganin twisted pairs.

19) At least one free KF16 or KF25 flange, to allow user installation of additional wiring. Two free flanges are desirable.

20) An inner diameter of the vacuum can of at least 44 mm

21) Free sample space of at least 70 mm below the field centre, and 120 mm above.

vi. 3He insert

22) 12 manganin twisted pairs.

23) At least one free KF16 or KF25 flange, to allow user installation of additional

wiring. Two free flanges are desirable.

24) An inner diameter of the vacuum can of at least 44 mm

25) Free sample space of at least 70 mm below the field centre, and 120 mm above.

26) With a 10 μW heat load, a hold time at a temperature of 320 mK or below of at least 24 h.

27) Please specify the type of temperature sensor and source of its calibration.

vii. Higher-temperature option

28) The tenderer should specify a method to achieve higher temperatures. If possible, this option should satisfy the sample space specifications given for the sample-in-vacuum interface. If it is not possible, options giving more sample space, up to these specifications, are preferred. The 400 K option may be achieved using one of the inserts listed above, or a separate high temperature insert. The preferred maximum temperature is 400 K, while holding the magnet at +12 T. No points will be awarded for temperatures above 400 K.

viii. Ceiling height

29) The system should be operable with a 3.7 m ceiling height.

II.2.5) Award criteria

Quality criterion - Name: Compliance to the Specifications / Weighting: 40

Quality criterion - Name: After Sales and Technical back up / Weighting: 7

Quality criterion - Name: Delivery and Training / Weighting: 8

Quality criterion - Name: Track record, based on customer references / Weighting: 5

Quality criterion - Name: Sustainability and Environmental / Weighting: 5

Quality criterion - Name: Standard Supplier Questionnaire (SQ) Part 1 and Part 2 / Weighting: 10

Price - Weighting: 5

II.2.11) Information about options

Options: No

II.2.14) Additional information

A Contract Notice was published for this tender on the 6th January 2021 in FTS and in CF.

Section IV. Procedure

IV.1) Description

IV.1.1) Type of procedure

Open procedure

IV.1.8) Information about the Government Procurement Agreement (GPA)

The procurement is covered by the Government Procurement Agreement: Yes

IV.2) Administrative information

IV.2.1) Previous publication concerning this procedure

Notice number: 2021/S 000-000216

Section V. Award of contract

Contract No

SC8828/21

Title

Supply and Installation of a 1.8 to 300 K Cryostat to the University of Birmingham

A contract/lot is awarded: Yes

V.2) Award of contract

V.2.1) Date of conclusion of the contract

10 May 2021

V.2.2) Information about tenders

Number of tenders received: 3

Number of tenders received by electronic means: 3

The contract has been awarded to a group of economic operators: No

V.2.3) Name and address of the contractor

Cryogenic Limited

6 Acton Park Industrial Estate

London

W3 7QE

Country

United Kingdom

NUTS code

- UKI - London

The contractor is an SME

No

V.2.4) Information on value of contract/lot (excluding VAT)

Initial estimated total value of the contract/lot: £248,000

Total value of the contract/lot: £248,000

Section VI. Complementary information

VI.4) Procedures for review

VI.4.1) Review body

The University of Birmingham

Edgbaston

B152TT

Country

United Kingdom