International and Inter University Centre for Nanoscience and Nanotechnology

Mahatma Gandhi University

Kottayam - 686560, Kerala, India

Tel: 0481-2731043, 2731669 *(Office), 09447671962 (Mobile)*

E-mail: nkkalarikkal@mgu.ac.in, cnnmgu@gmail.com

Dr. ***Nandakumar Kalarikkal***

Director

23.01.2019

Tender No.24/Qut-Tend/IIUCNN/2018-2019

INVITING TENDERS

The International and Inter University Centre for Nanoscience and Nanotechnology (IIUCNN), Mahatma Gandhi University, Kottayam, Kerala, India, invites competitive tenders from companies/firms for supplying the instruments mentioned below.

Chiller Unit for VSM

Names of the equipments	Chiller Unit for VSM
Last date and time of submission of relevant documents by speed post	06.02.2019 2.PM
Date and time of opening of technical bid	07.02.2019 10.AM
Date and time of opening of financial bid	07.02.2019. 10.30AM

Application

1 Application : Primary CRYO- Chiller for VSM

2 Application Details : Adapter and Coupling for CRYO Cooling system

3 Heat Load: 17.5 kW

4 Required Entry Media Temperature to Process: 15° C

5 Required Flow Rate: 50 lpm

6 Required Pressure: 3 bar

7 Cooling Media Details: Soft Water

8	Any Impurities in Media:	RO purified water
9	Rated Operating Ambient Temp:	35° C
10	Maximum Operating Ambient temp:	45° C
11	Minimum Operating Ambient temp:	10° C
12	Indoor / Outdoor Installation	Indoor
13	Air Flow Direction, Top / Side	Top throw
14	Ambient Air Quality	normal

Chiller specification

1	Cooling Capacity	17.5 kW / 5 TR / 15000 kcal/hr
2	No. of Compressor Circuits	1
3	Refrigerant	R407C
4	Outlet Cooling media Temperature from Chiller	15° C
5	Process Flow rate & Pressure or cooling Media delivered from chiller	50 lpm & 3 bar
6	No. of Process Pumps	1
6 (A)	Internal Pumps	NA
7	Type of Compressor	Scroll
8	Type of Controller	Microprocessor
9	Type of Condenser / MOC	Air cooled condensor / Copper tubes with Aluminium Fins
10	Type of Expansion Device	Thermostatic expansion valve
11	Type of Evaporator / MOC	Brazed Plate Heat exchanger / SS 316 plates
12	Reservoir Volume / MOC	125 ltrs / SS 304
13	Type of Pump / MOC	Centrifugal / SS 304 impeller and CI casing
14	MOC of other Wetted Parts	SS 304
15	MOC of Chiller Frame	CRCA
16	Type of Surface Coating	Powder coated
17	Color	RAL 7037 & RAL 7035
18	Castor Wheels / Hard mount	Castor Wheels
19	Power Supply	3 PH, 415 V, 50 Hz
20	Power Consumption	6.8 kW

21 Current 12.2 A

22 Hydraulic End Connection Size & Type 1 " BSP

23 No. of Skids 1

24 Skid (s) Description NA

25 Dimensions of Skid (s) 900mm W X 900mm D X 1550mm H

26 Weight per Skid 280Kg

27 Submission for Approval / ReferenceDimensional dwg, electrical ckt drawing / layout dwg.

27.A Customer Approval Required

28 Noise 90 dBA

Additional specifications

1 Chiller performance rating ambient temperature 35 deg C

2 Chiller performance rating media temperature 15 deg C

3 Add Recommended percentage of glycol to water ion media temperatures ... < 5 deg C

4 Chiller performance tolerance +/- 5 % for full load and + / - 12% for part load

Design Specifications Refrigeration

1 Compressor Type Scroll

SealingHermetic

Refrigerant R407C

Unloading percentage 0% / 100%

Motor insulation type F class insulation

2 Condenser Type Air cooled

Tubes Copper internally grooved

Fins Aluminium, sine wave

3 Type Axial flow

Exhaust fan MOC CRCA powder coated wings

Insulation class for motor F

Electrical protection IP 44

4 Evaporator Type Brazed plate Heat exchanger

MOC SS 316

Test pressure 40 bar

5 Expansion Device Type Thermostatic expansion valve

6 Refrigeration Line Components Standard components like filter drier, hand shut off valves, HP/LP switches, etc

Design Specifications Hydraulic

1 Pump Type Centrifugal

MOC SS 304 impeller and casing, Cast iron inlet and outlet chambers

Mechanical Seal EPDM

Motor F class insulation, IP 55 protection

2 Volume 125 ltrs

Reservoir MOC SS 304

Insulation Nitrile rubber

Accessories Level indicator, level switch, temp. sensor

3 Piping MOC SS 304

Flexible hose Synthetic elastomer, Textile braiding, MS clamping

4 Pressure guage Analog type, glycerine filled

Design Specifications Electrical

1 Controller Type Microprocessor

Display LED

Accuracy +/- 1 deg C, with 1 NTC probe

Electrical protection IP 41

2 Switch Gears MPCB, Contactor, MCB, Main switch complyting to IEC standards

3 Transformer Control transformer with multi tapping consisting or Primary input or 420V, 400V and 380V and Secondary output of 240V, 220V, 200V respectively

4 Accessories Other electrical accessories include SPP, indicators, grommets, Cables, wires, Cable glands, terminal blocks, MCB channel, lugs etc.

5 Cabinet Powder coated electrical cabinet with industrial lock. IP 54 protected for outdoor application / IP 41 protected for indoor application

Design Specifications Enclosure

1	MOC	CRCA
2	Surface Coating	7 tank degreasing process, Powder coating
3	Color	RAL 7037 & RAL 7035

Design Specifications Safety Interlocks

1	HP trip	High pressure trip to the compressor from the pressure switch, safeguarding the system from conditions like blocked condenser, High ambient temperature or overcharged system
2	LP trip	Low pressure trip to the compressor from the pressure switch, safeguarding the system from conditions like Gas leakage, system blockage, Evaporator freezing or undercharged system
3	WLL trip	Water level trip to the pump from the Float switch fixed inside the tank, safeguarding the pump from dry running
4	SPP trip	Single phase prevention trip to all the electrical components in the chiller providing safety from phase reversal or phase loss
5	OLR trip	Overload relay trip to all the electrical components, securing system from over load current.
6	AFT trip	Anti-freeze trip to the compressor, preventing the evaporator from freezing and securing the system from the conditions of pump failure

Design Specifications Coupling adapters for VSM : specified Q3D interlock with VSM required.

TERMS AND CONDITIONS

1. The quoted price should be inclusive of all taxes/freight/installation charges, etc.
2. Customs/Excise Duty exempted price should also be quoted
3. The quotation should have at least three months validity
4. Brand name of the equipment should be mentioned and brochure to be enclosed
5. Warranty conditions, details of the nearest servicing centers, user reference, necessary supporting catalogues and demonstration should be provided
6. The right to accept or reject quotes without assigning any reason rests entirely with the undersigned
7. Authorized dealer certificate should be attached with tender.
8. If the date of receipt and opening of quotation is declared a holiday, the next working day shall be the last day for the purpose.
9. At least two users should be trained by the application engineers during the time of installation.

10. The item mentioned in the tender is for research purpose. Any Specification which is above or below the defined values is not compatible for the studies and hence not fit to purpose and will be rejected. Only the specifications which is exactly or most close will be considered for the next stage of the tender process.

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