



INST/12(193)/2016 - PUR

20th December 2016

To

NOTICE INVITING TENDER

Dear Sir,

Sealed Quotations are invited on behalf of Director, INST Mohali for the Supply and Installation of 40KVA UPS - 01No., 20KVA UPS (03Phase) - 01No. and 06KVA UPS - 01No. so as to reach latest by 13th January 2017 on or before 02.00PM. The Quotations will be opened on the same day at 3.00PM in the presence of tenderers, if any:

Before quoting, please read the instructions and technical specifications carefully as enclosed.

Note: Please attach the copies of previous supply order to any Government Institutes/ autonomous bodies/ PSU, if any, with the quotation and provide the contact person and his contact Nos.

Yours faithfully

-sd-

Chief Fin and Admn Officer



INSTRUCTIONS

- Inquiry, if any, may be sent by Courier or Speed Post. INST will not be liable for any kind of postal delay.
- The Quotation Should be addressed to the Director INST, Mohali invariably giving on the envelop Quotation for _____, Reference No. With date and due date with time.
- The Quantity mentioned in this inquiry shall be deemed to be only approximate and will not in any manner be binding on the Institute.
- The quotation should be enclosed in a sealed envelope.
- Firms will quote separately for each article.
- The rates offered should be FOR Mohali in case of firms situated outside Chandigarh and free delivery at the Institute premises in case of local firms.
- VAT/CST: The Institute is not exempted from the payment of Sales Tax/Service Tax/VAT. The rate (i.e., percentage of taxes applicable should be clearly indicated, wherever chargeable.
- In case of Ex-godown terms the amount of packaging forwarding freight etc. should clearly be indicated by percentage or lump sum amount. Current rate of Sales Tax/VAT must be mentioned. The institute is exempted from Customs and Excise Duty.
- The delivery period should be specifically stated. Ex-Stock and earlier delivery may be preferred.
- The firms are requested to give detailed description and specifications together with the detailed drawings, printed leaflets and literature of the Article quoted.
- The name of the manufacturers and country of manufacture should also invariably be stated. In the absence of these particulars the quotation is liable for rejection.
- Quotation should have minimum validity of 120 days from the date of opening.
- The rates quoted should be for each item separately otherwise your quotation is liable to be ignored.
- Late or delayed quotation will not be accepted.
- Director has the right to reject to the quotations and to split up the requirements or change any or all the above conditions without assigning any reason.



Institute of Nano Science and Technology

Habitat Centre, Sector 64, Phase X, Mohali -160062, Punjab, India

Ph: +91-172-2210073/75; Fax: +91-172-2211074; E-mail ID: purchase@inst.ac.in

NOTICE INVITING TENDER

INST invites sealed quotations from the reputed manufacturers or their authorized dealers so as to reach this office on or before scheduled date and time for the instrument, as per specifications given in the Annexure attached. All offers should be made in English and should be written in both figures and words.

The bidders are requested to read the tender instructions carefully and ensure compliance with all specifications/instructions herein. Non-compliance with specifications/instructions in this document may disqualify the bidders from the tender exercise. The Director, INST reserves the right to select the item (in single or multiple units) or to reject any quotation wholly or partly without assigning any reason. Incomplete tenders, amendments and additions to tender after opening or late tenders are liable to be ignored and rejected.

1.	Name of the Instrument	40KVA UPS - 01No. 20KVA UPS (03Phase) - 01No. and 06KVA UPS - 01No.
2.	Ref. No.	INST/12(193)/2016 - PUR
3.	Quantity required	One each
4.	EMD	Rs. 35, 000/- (Rupees Two Thousand Five Hundred Only)
5.	Tender Fee (Non-Refundable)	Rs. 500/- (Rupees Five Hundred Only)
6.	Time for completion of supply after placing purchase order	One Month
7.	Last Date of submission of Tender	13/01/2017 (Friday) before 2.00PM
8.	Tender to be submitted at the following address	The Director, Institute of Nano Science and Technology, Habitat Centre, Sector 64, Phase -X, Mohali, 160062, Punjab, India
9.	Date and time of opening of bid	13/01/2017 (Friday) before 3.00PM

Note:

1. The Institute shall not be responsible for any postal delay about non-receipt / non delivery of the bids or due to wrong address.



TERMS AND CONDITIONS

Important Conditions of the tender to be abide by the tenderer

1. **Due date:** The tender has to be submitted before the due date. The offers received after the due date and time will not be considered.
2. **Preparation of Bids:** The offer/bid should be submitted in single bid system (i.e.) Technical bid cum financial bid. **The Quotations should be valid for 120 days from the due date.** The Quotations duly sealed and super scribed on the envelope with the reference No. and due date, should be addressed to “**The Director, Institute of Nano Science and Technology, Habitat Centre, Sector 64, Phase –X, Mohali, 160062, Punjab**” so as to reach on or before the due date.
3. **Delivery of the tender:** The tender shall be sent to the addressee given in para 2 (above) either by post or by courier so as to reach our office before the due date specified in our Schedule. The offer/bid can also be dropped in the tender box on or before the due date specified in the schedule. The tender box is kept in Foyer area of INST.
4. **Opening of the tender:** The offer/bid will be opened by a committee duly constituted for this purpose. The bidders if interested may participate on the tender opening Date and Time. The bidder should produce authorization letter from their company to participate in the tender opening. Only one representative will be allowed to participate in the tender opening.
5. **Acceptance/Rejection of bids:** The INST reserves the right to reject any or all offers without assigning any reason.
6. **EMD:** The tenderer should submit EMD amount as per tender ref. no. through NEFT/RTGS in INST Account. Account Details are as follows:
 - a. Name of Beneficiary: Institute of Nano Science and Technology (INST)
 - b. Account No. **2452201001102**
 - c. Name of Bank: **Canara Bank, Sector 34, Chandigarh**
 - d. IFS Code: **CNRB0002452**
 - e. MICR Code: **160015003**
 - f. Swift Code: **CNRBINBBFFC**

The details of transaction for EMD viz. Name of bidder firm, Tender Description, Transaction ID/No. of Transfer, Transaction date, Amount of Transaction, Name of Bank, Address of Bank shall be furnished by the tenderer on their letterhead separately along with their tender.
7. **Refund of EMD:** Bid securities of the unsuccessful bidders shall be returned to them at the earliest after expiry of the final bid validity and latest on or before the 30th day after the award of the contract. In case of successful Tenderer, it will be retained till the successful and complete installation of the equipment.



8. **Performance Security:** The supplier shall be required to submit the performance security in the form of irrevocable bank guarantee issued by any Indian Nationalized Bank for an amount which is equal to the 10% of Purchase value at the time of the installation of the equipment covering warranty period of the equipment and should be kept valid for a period of 60 days beyond the date of completion of warranty period.
9. **REASONABILITY OF PRICES :**
Please quote best minimum prices applicable for a premier Research Institution, **leaving no scope for any further negotiations on prices.** **The quoting party should give a certificate to the effect that** the quoted prices are the minimum and they have not quoted the same item on lesser rates than those being offered to INST to any other customer nor they will do so till the validity of offer or execution of the purchase order, whichever is later. We request you to fill the price reasonability certificate format in the enclosed file (Annexure "1")
The party must give details of identical or similar equipment, if any, supplied to any CSIR labs/DBT Institutes during last three years along with the final price paid and Performance certificate from them.
10. **Force Majeure:** The Supplier shall not be liable for forfeiture of its performance security, liquidated damages or termination for default, if and to the extent that, it's delay in performance or other failure to perform its obligations under the Contract is the result of an event of Force Majeure.
- For purposes of this Clause, "Force Majeure" means an event beyond the control of the Supplier and not involving the Supplier's fault or negligence and not foreseeable. Such events may include, but are not limited to, acts of the Purchaser either in its sovereign or contractual capacity, wars or revolutions, fires, floods, epidemics, quarantine restrictions and freight embargoes.
 - If a Force Majeure situation arises, the Supplier shall promptly notify the Purchaser in writing of such conditions and the cause thereof. Unless otherwise directed by the Purchaser in writing, the Supplier shall continue to perform its obligations under the Contract as far as is reasonably practical, and shall seek all reasonable alternative means for performance not prevented by the Force Majeure event.
11. **Risk Purchase Clause:** In event of failure of supply of the item/equipment within the stipulated delivery schedule, the purchaser has all the right to purchase the item/equipment from the other source on the total risk of the supplier under risk purchase clause.
12. **Packing Instructions:** Each package will be marked on three sides with proper paint/indelible ink, the following:
- i. Item Nomenclature
 - ii. Order/Contract No.
 - iii. Country of Origin of Goods
 - iv. Supplier's Name and Address
 - v. Consignee details
 - vi. Packing list reference number



13. **Delivery of Goods:**
Delivery should be given at **Institute of Nano Science and Technology, Habitat Centre, Sector - 64, Phase 10, Mohali** within a maximum of one month's time from the date of placement of purchase order.
14. **Delayed delivery:** If the delivery is not made within the due date for any reason, INST will have the right to impose penalty @ 0.5% per week and the maximum deduction is 10% of the contract value / price.
15. **Prices:** The price should be quoted in net per unit (after breakup) and must include all packing and delivery charges. The offer/bid should be exclusive of taxes and duties, which will be paid by the purchaser as applicable. However the percentage of taxes & duties shall be clearly indicated.
The price should be quoted without custom duty and excise duty, since INST is exempted from payment of Excise Duty and is eligible for concessional rate of custom duty. Necessary certificate will be issued on demand. **(Please refer Annexure – 2 for price to be quoted).**
16. **Notices:** For the purpose of all notices, the following shall be the address of the Purchaser and Supplier.
 - i. **Purchaser:** The Director,
Institute of Nano Science and Technology,
Habitat Centre, Sector – 64, Phase X, Mohali – 160064.
 - ii. **Supplier:** (To be filled in by the supplier)
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.....
17. **Resolution of Disputes:** The dispute resolution mechanism to be applied pursuant shall be as follows:
 - i. In case of Dispute or difference arising between the Purchaser and the supplier relating to any matter arising out of or connected with this contract, such disputes or difference shall be settled in accordance with the Indian Arbitration & Conciliation Act, 1996, the rules there under and any statutory modifications or re-enactments thereof shall apply to the arbitration proceedings. The dispute shall be referred to the Director, Institute of Nano Science and Technology (INST) Mohali and if he is unable or unwilling to act, to some other person appointed by him willing to act as such Arbitrator. The award of the arbitrator so appointed shall be final, conclusive and binding on all parties to this order.
18. **Applicable Law:** The place of jurisdiction would be Mohali (Punjab) INDIA.



19. **Right to Use Defective Goods**

If after delivery, acceptance and installation and within the guarantee and warranty period, the operation or use of the goods proves to be unsatisfactory, the Purchaser shall have the right to continue to operate or use such goods until rectifications of defects, errors or omissions by repair or by partial or complete replacement is made without interfering with the Purchaser's operation.

20. **Training**

The Supplier is required to train the designated Purchaser's technical and end user personnel to enable them to effectively operate the total equipment.

21. **Installation & Demonstration**

The supplier is required to do the installation and demonstration of the equipment within one month of the arrival of materials at the INST site of installation, otherwise the penalty clause will be the same as per the supply of materials.

22. **Warranty:** As mentioned in technical specification. The Warranty should be comprehensive on site.

23. **Taxes and Duties**

Suppliers shall be entirely responsible for all taxes, duties, license fees, octroi, road permits, etc., incurred until delivery of the contracted Goods to the Purchaser. However, VAT in respect of the transaction between the Purchaser and the Supplier shall be payable extra, if so stipulated in the order.

24. **Payment:** 100% payment shall be made by the Purchaser after delivery, inspection, successful installation, commissioning and acceptance of the equipment at INST in good condition and to the entire satisfaction of the Purchaser and on production of unconditional performance bank guarantee as specified in Clause 8 of tender terms and conditions.

25. **User list:** Brochure detailing technical specifications and performance, list of industrial and educational establishments where the items enquired have been supplied must be provided.

26. **Manuals and Drawings**

- Before the goods and equipments are taken over by the Purchaser, the Supplier shall supply operation and maintenance manuals. These shall be in such details as will enable the Purchaser to operate, maintain, adjust and repair all parts of the works as stated in the specifications.
- The Manuals shall be in the ruling language (English) in such form and numbers as stated in the contract.
- Unless and otherwise agreed, the goods equipment shall not be considered to be completed for the purposes of taking over until such manuals and drawing have been supplied to the Purchaser.

27. **Site Preparation:** The supplier shall inform to the Institute about the site preparation, if any, needed for the installation of equipment, immediately after the receipt of the purchase order. The supplier must provide complete details regarding space and all the other infrastructural requirements needed



for the equipment, which the Institute should arrange before the arrival of the equipment to ensure its timely installation and smooth operation thereafter.

The supplier shall visit the Institute and see the site where the equipment is to be installed and may offer his advice and render assistance to the Institute in the preparation of the site and other pre-installation requirements.

28. **Acknowledgement:** It is hereby acknowledged that we have gone through all the conditions mentioned above and we agree to abide by them.

SIGNATURE OF TENDERER

ALONG WITH SEAL OF THE COMPANY WITH DATE



BID PARTICULARS

1. Name of the Supplier :
2. Address of the Supplier :
3. Availability of demonstration of equipment : Yes / No
4. Tender cost enclosed: : Yes/No if yes
5. Online EMD submission information enclosed : Yes / No if Yes

Transaction ID/No. of Transfer_____

Transaction date: _____

Amount of Transaction_____

Name of Bank_____

Address of Bank_____

6. Name and address of the Officer/contact person to whom all references shall be made regarding this tender enquiry

Name:

Address:

Ph:

Fax:

Mobile:

Email:

Web:



Compliance statement for the tender specifications

Tender Ref No.: **INST/12(193)/2016 – PUR**

S.No.	Check list of documents/Undertakings	Yes/No	Remarks (give explanation if the answer is No)
1.	Is EMD transaction attached? (if applicable)		
2.	Is the bidder original equipment manufacturer (OEM)/authorised dealer?		
3.	If authorised dealer, recent dated certificate to this effect from OEM, attached or not?		
4.	Undertaking from OEM regarding technical support & extended warranty period		
5.	Validity of bid 120 days or not?		
6.	Undertaking from bidder regarding acceptance of tender terms & conditions (required on letter head of the bidder)		
7.	Whether list of reputed users (along with telephone numbers of contact persons) for the past three years specific to the instrument attached?		
8.	Does the instrument comply with all the specifications detailed? Attach a separate sheet showing compliance with the specifications and explanations thereto if the equipment varies from the requested specifications.		
9.	Whether free Installation, Commissioning and Application Training offered?		
10.	Whether comprehensive onsite extended warranty as per technical specification offered?		



Annexure – 1

PRICE REASONABILITY CERTIFICATE

This is to certify that we have offered the maximum possible discount to you in our Quotation No. _____ dated _____ for (Value Rs.) _____.

We would like to certify that the quoted price are the minimum and we have not quoted the same item on lesser rates than those being offered to INST to any other customer nor we will do so till the validity of offer or execution of purchase order, whichever is later.

Seal and Signature of the tenderer



Annexure - 2

Name of Equipment with Model No: _____

Name & Address of Manufacturer: _____

Price Quoted

A. For Indigenous Equipment

- I. Cost of equipment (Rs.) _____
- II. Taxes (CST/VAT) (Rs.) _____
- III. Any other charges (Rs.) _____
- IV. Total cost of equipment (in Rs.) F.O.R, INST, Mohali _____

B. For Imported Equipment

- I. Cost of equipment (In Foreign Currency) _____
- II. Packing and Forwarding _____
- III. FOB/FCA Price _____
- IV. Freight charges upto Delhi Airport _____
- V. Insurance (110% of the cost of the equipment) _____
- VI. CIF/CIP upto Delhi Airport _____

Signature of Tenderer with date and seal



Supply and installation of UPS back-up systems (as specified below for Physical Property Measurement System, and Pulsed Laser Deposition system). Necessary wiring from UPS to the instrument including switch box etc according to user's need should be constructed for the uninterrupted operation of the instrument. Necessary earthing should also be provide.

COMPLIANCE STATEMENT TO TECHNICAL SPECIFICATIONS OF THE UPS FOR PPMS CHILLER, COMPRESSOR & MACHINE LOAD

ALL VENDORS ARE REQUIRED TO FILL-UP THE 'OFFERED SPECIFICATIONS' COLUMN (Mandatory)

SPECIFICATIONS FOR 40 KVA ONLINE U.P.S. SYSTEM WITH 30 MINUTES BACK-UP		
PARAMETER	REQUIRED SPECIFICATION	OFFERED SPECIFICATION
Topology	True Online Double Conversion Power Recreation	
Isolation	Regenerated Output Neutral for Galvanic Isolation between Mains and Load	
Rectifier Design	Fully Controlled	
Charger Design	Low Ripple CVCC Battery Charging	
Automatic phase sequence correction	Required the UPS should keep working indefinitely in case of incoming phase reversal and also charge the batteries	
Inverter Design	Advanced Sine-weighted High Frequency PWM using IGBT with Instantaneous Sine-wave Control	
Duty	Continuous Operation.	
INPUT		
Voltage Range	340 to 470 V, Three Phase	
Frequency Range	47 to 53 Hz	
Input Phase Sequence Reversal	UPS should keep working normally without draining the batteries	
OUTPUT		
Power Rating	40 KVA /40 KW, 400 V, 3 Phase	
Output Current	Continuous Output Current = 58A Per Phase	
Voltage	± 1%	

Regulation		
Frequency	50 Hz \pm 0.05% Crystal Controlled	
Waveform	Sine Wave	
Harmonic Distortion	Less than 3% on linear load	
Power Factor	Unity to 0.7 lag within specified power ratings	
Load Crest Factor	3:1 without derating	
Overload Rating	125% for 10 minutes 150% for 1 minute 300% for 10 milliseconds The UPS should not trip in case of Start-up of Any Load at the Output within the above specifications	Specify Output Current @ 400 V and 125% load: Specify Output Current @ 400 V and 150% load : Specify Output Current @ 400 V and 300% load :
PARAMETER	REQUIRED SPECIFICATION	OFFERED SPECIFICATION
BATTERY		
Type	Sealed Lead Acid Maintenance Free	
Back-up Time	30 Minutes on full load. Battery Required : For 40 KVA Load : 40000 VAh Minimum	Specify No. Of Batteries : Specify Voltage of Each Battery : Ampere-Hour Rating of Each Battery :
Battery Installation	For Safety of the user, either the batteries should be built-in OR external Powder-coated battery cabinet should be supplied. There shall be a suitable Battery MCB / MCCB / Protection in addition to protection inside the UPS	
PROTECTIONS		
Input Over Current	Input Under/ Over Voltage	Output Under/ Over Voltage

Over Temperature	Battery Under/ Over Voltage	Output Overload & Short Circuit	
ENVIRONMENTAL			
Operating Temperature	0 to 45 deg C (50 deg C Peak)		
Relative Humidity	Upto 95% Non-condensing		
Audible Noise	< 55 dB at 1 metre		
Ingress Protection	IP 20 for UPS IP 10 for Battery Cabinet		
Cooling	Forced Air Cooling		
EXTERNAL PANEL FOR UPS INPUT AND LOAD DISTRIBUTION			
Input	Suitable MCB / MCCB of Reputed Brand	Specify the Brand and rating :	
Output 1 Phase	Minimum 6 No. Through Two Pole MCB – C-Curve	Specify the No. Rating	
Output 3 Phase	Minimum 3 No. Through Four Pole MCB – C-Curve	Specify the No. Rating	
UPS Output Change-Over Switch	Rated for 63 A, Single Phase, Two Pole		
Indications	Suitable Long-term Reliability LED Type		
EARTHING			
4 No. to be Made per UPS	ERICO CHEMICAL EARTHING Material for Onsite Work using 10 Feet or Longer Steel Bonded Copper Electrode and Ground Enhancement Material as per Global Standard along with Wiring and hardware		
CABLING, LAYING & DISTRIBUTION FROM Input Output Panel to Load			
Suitably Rated as per Electrical Standard	To be done by the supplier. The Complete scope may be evaluated prior to offering		

ONSITE WARRANTY		
For UPS	5 years Minimum	
For Battery	5 years Minimum	
For Earthing	5 Years Minimum	
For Distribution Board, cabling etc.	5 Years Minimum	

COMPLIANCE STATEMENT TO TECHNICAL SPECIFICATIONS OF THE UPS FOR CRITICAL ANALYTICAL MACHINES

VENDORS ARE REQUIRED TO FILL-UP THE 'OFFERED SPECIFICATIONS' COLUMN (Vendor not filling-up this format will be rejected)

SECOND TIER OF ONLINE UPS PROTECTION DEDICATED FOR CRITICAL LOAD - 3 KVA		
PARAMETER	REQUIRED SPECIFICATION	OFFERED SPECIFICATION
Topology	True Online Double Conversion Power Recreation	
Inverter Design	Advanced Sine-weighted High Frequency PWM using IGBT with Instantaneous Sine-wave Control	
Duty	Continuous Operation.	
INPUT		
Voltage Range	180 to 260 V, Three Phase	
Frequency Range	47 to 53 Hz	
OUTPUT		
Power Rating	3 KVA 230 V, 1 Phase	
Output Current	Continuous Output Current @ 230 V AC = 13 A	
Voltage Regulation	± 1%	
Frequency	50 Hz Nominal	
Waveform	Sine Wave	
Power Factor	Unity to 0.7 lag within specified power ratings	
Load Crest Factor	3:1 without derating	
High Efficiency Mode	Required to ensure lower Power Losses and Two-Tier UPS Redundancy for Critical Load	
Output Load Segments	Minimum 2 No.	Specify the No. Rating
Output Programmability	Each Load Segment should be Programmable for the Back-up time	

External Relay Port / Contact	Should be provided for Extending Alarm / Signaling to the Infrastructure / Panel		
BATTERY			
Type	Sealed Lead Acid Maintenance Free		
Back-up Time	30 minutes on full load. Battery Required : For 3 KVA UPS : 3000 VAh Minimum	Specify No. Of Batteries : Specify Voltage of Each Battery : Ampere-Hour Rating of Each Battery :	
Battery Installation	For Safety of the user, either the batteries should be built-in OR external Powder-coated battery cabinet should be supplied.		
Battery Cabinet Protections	IP10 Protection		
Battery Path Protection	There shall be a suitable DC Type MCB / MCCB / Protection in addition to protection inside the UPS		
PROTECTIONS			
Input Over Current	Input Under/ Over Voltage	Output Under/ Over Voltage	
Over Temperature	Battery Under/ Over Voltage	Output Overload & Short Circuit	
PARAMETER	REQUIRED SPECIFICATION		OFFERED SPECIFICATION
ENVIRONMENTAL			
Operating Temperature	0 to 40 Deg C for UPS Electronics		
Relative Humidity	Upto 95% Non-condensing		
Audible Noise	< 55 dB at 1 metre		
Ingress Protection	IP21		
Cooling	Forced Air Cooling		
EXTERNAL PANEL FOR UPS INPUT AND LOAD DISTRIBUTION			
Input	Suitable MCB / MCCB of Reputed Brand for Both UPSs	Specify the Brand and rating :	



Output Load Segments	Minimum 2 No.	Specify the No. Rating
UPS Output Change-Over Switch	Rated for 25 A, Single Phase, Two Pole	
Indications	Suitable Long-term Reliability LED Type	
ONSITE WARRANTY		
For UPS	5 years Minimum	
For Battery	5 years Minimum	

COMPLIANCE STATEMENT TO TECHNICAL SPECIFICATIONS OF THE UPS FOR Pulsed laser deposition system

ALL VENDORS ARE REQUIRED TO FILL-UP THE 'OFFERED SPECIFICATIONS' COLUMN (Mandatory)

SPECIFICATIONS FOR 20 KVA THREE PHASE ONLINE U.P.S. SYSTEM FOR PULSE LASER DEPOSITION MACHINE		
PARAMETER	REQUIRED SPECIFICATION	OFFERED SPECIFICATION
Topology	True Online Double Conversion Power Recreation	
Isolation	Regenerated Output Neutral for Galvanic Isolation between Mains and Load	
Rectifier Design	Fully Controlled	
Charger Design	Low Ripple CVCC Battery Charging	
Automatic phase sequence correction	Required the UPS should keep working indefinitely in case of incoming phase reversal and also charge the batteries	
Inverter Design	Advanced Sine-weighted High Frequency PWM using IGBT with Instantaneous Sine-wave Control	
Duty	Continuous Operation.	
INPUT		
Voltage Range	340 to 470 V, Three Phase	
Frequency Range	47 to 53 Hz	
Input Power Factor	>0.92	

OUTPUT		
Power Rating	20 KVA / 20 KW	
Output Voltage	200 V / 220 V, 3 Phase, 4 Wire (115 V / 127 V Phase to Neutral for Each Phase)	
Output Current	Continuous = 58 A Per Phase	
Voltage Regulation	± 2%	
Frequency	50 Hz ± 0.05% Crystal Controlled	
Waveform	Sine Wave	
Harmonic Distortion	Less than 2% on linear load	
Power Factor	Unity to 0.7 lag within specified power ratings	
Load Crest Factor	3:1 without derating	
Overload Rating	125% for 10 minutes 150% for 1 minute 250% for 30 Seconds 300% for 10 milliseconds The UPS should not trip in case of Start-up of Any Load at the Output within the above specifications	Specify Output Current @ 230 V and 125% load: Specify Output Current @ 230 V and 150% load : Specify Output Current @ 230 V and 250% load : Specify Output Current @ 230 V and 300% load :
PARAMETER	REQUIRED SPECIFICATION	OFFERED SPECIFICATION
BATTERY		
Type	Sealed Lead Acid Maintenance Free	
Back-up Time	30 Minutes on full load. Battery Required : For 20 KVA /20KW UPS : 22620 VAh Minimum	Specify No. Of Batteries : Specify Voltage of Each Battery : Ampere-Hour Rating of Each Battery :
Battery Installation	For Safety of the user, either the batteries should be built-in OR external Powder-coated battery cabinet should be supplied.	

	There shall be a suitable Battery MCB / MCCB / Protection in addition to protection inside the UPS		
PROTECTIONS			
Input Over Current	Input Under/ Over Voltage	Output Under/ Over Voltage	
Over Temperature	Battery Under/ Over Voltage	Output Overload & Short Circuit	
ENVIRONMENTAL			
Operating Temperature	0 to 45 deg C (50 deg C Peak)		
Relative Humidity	Upto 95% Non-condensing		
Audible Noise	< 55 dB at 1 metre		
Ingress Protection	IP21		
Cooling	Forced Air Cooling		
EXTERNAL PANEL FOR UPS INPUT AND LOAD DISTRIBUTION			
Input	Suitable MCB / MCCB of Reputed Brand Minimum 2 No. 4 Pole MCB, C-Curve	Specify the Brand and rating :	
Automatic Phase Sequence Correction	Required		
Output	Minimum 3 No. Through Three Pole MCB – C-Curve	Specify the No. Rating	
Change-Over Switch	Rated for 60 A, Three Phase, Four Pole		
Automatic Changeover	Required		
Indications	Suitable Long-term Reliability LED Type		
EXTERNAL STEP-DOWN ISOLATION TRANSFORMER			
PARAMETER	REQUIRED SPECIFICATION	OFFERED SPECIFICATION	
Topology	K-Rated Ultra-Isolation Type		

Isolation	Regenerated Output for Galvanic Isolation between Mains and Load	
Duty	Continuous Operation.	
INPUT		
Voltage Range	400V/ 415 V,, Three Phase, Delta	
Frequency Range	45 to 55 Hz	
OUTPUT		
Power Rating	20 KVA / 20 KW	
Output Voltage	200 V/ 220V, 3 Phase, 4 Wire (115 V Phase to Neutral for Each Phase)	
Output Current	Continuous = 58 A Per Phase	

EARTHING		
3 No. to be Made per UPS	ERICO CHEMICAL EARTHING Material for Onsite Work using 10 Feet or Longer Steel Bonded Copper Electrode and Ground Enhancement Material as per Global Standard along with Wiring and hardware	
CABLING, LAYING & DISTRIBUTION FROM Input Output Panel to Load		
Suitably Rated as per Electrical Standard	All Wiring Between UPS, Batteries, External Input / Output/ Changeover Panel, External Transformer To be done by the supplier. The Complete scope may be evaluated prior to offering	
ONSITE WARRANTY		
For UPS	5 years Minimum	
For Battery	5 years Minimum	
For Earthing	5 Years Minimum	
For Distribution Board, cabling	5 Years Minimum	

etc.		
For Transformer	5 Years Minimum	
SPECIFICATIONS FOR 6 KVA ONLINE U.P.S. SYSTEM FOR LASER MACHINE		
PARAMETER	REQUIRED SPECIFICATION	OFFERED SPECIFICATION
Topology	True Online Double Conversion Power Recreation	
Isolation	Regenerated Output Neutral for Galvanic Isolation between Mains and Load	
Rectifier Design	Fully Controlled	
Charger Design	Dual-Step (Float/ Boost), Low Ripple CVCC Battery Charging	
Inverter Design	Advanced Sine-weighted High Frequency PWM using IGBT with Instantaneous Sine-wave Control	
Duty	Continuous Operation.	
INPUT		
Voltage Range	170 to 270 V, Single Phase	
Frequency Range	47 to 53 Hz	
OUTPUT		
Power Rating	6 KVA, 230 V, 1 Phase	
Output Current	Output Current per Phase @ 230 V AC = 26 A Continuous	
Voltage Regulation	$\pm 1\%$	
Frequency	50 Hz $\pm 0.05\%$ Crystal Controlled	
Waveform	Sine Wave	
Harmonic Distortion	Less than 3% on linear load	
Power Factor	Unity to 0.7 lag within specified power ratings	
Load Crest Factor	3:1 without derating	

PARAMETER	REQUIRED SPECIFICATION	OFFERED SPECIFICATION
Overload Rating	125% for 10 minutes 150% for 1 minute 300% for 10 milliseconds The UPS should not trip in case of Start-up of Chiller Unit	Specify Output Current @ 230 V and 125% load: Specify Output Current @ 230 V and 150% load : Specify Output Current @ 230 V and 300% load :
BATTERY		
Type	Sealed Lead Acid Maintenance Free	
Back-up Time	30 Minutes on full load. Battery Required : For 6 KVA Load : 4600 VAh Minimum	
Battery Installation	For Safety of the user, either the batteries should be built-in OR external Powder-coated battery cabinet with castor-wheels should be supplied.	
PROTECTIONS		
Input Over Current	Input Under/ Over Voltage	Output Under/ Over Voltage
Over Temperature	Battery Under/ Over Voltage	Output Overload & Short Circuit
ENVIRONMENTAL		
Operating Temperature	0 to 45 deg C (50 deg C Peak)	
Relative Humidity	Upto 95% Non-condensing	
Audible Noise	< 55 dB at 1 metre	
Ingress Protection	IP21	
Cooling	Forced Air Cooling	



WARRANTY		
For UPS	36 months Minimum	
For Battery	36 months Minimum	

Supplier should provide name and contact detail of users. Supplier must have supplied atleast three systems in last three years, contact details and PO of them must be provided. Based on the feedback of end users the tender submitted by the suppliers might be rejected.