Invitation to bid

|  |  |
| --- | --- |
| **YOU ARE HEREBY INVITED TO BID FOR THE REQUIREMENTS OF THE**  **South African Nuclear Energy Corporation SOC Ltd** | |
| **BID NUMBER:** | FIN-SCM-TEN-0013 |
| **BID DESCRIPTION:** | Bid to supply two 30 kW power supply unit for plasma waste destruction project |
| **CLOSING DATE:** | 23 June 2023 |
| **CLOSING TIME:** | 11:00am |
| **BID VALIDITY PERIOD:** | 90 Days (Commencing the bid Closing Date) |
| **DELIVERY ADDRESS:** | **BID DOCUMENTS MUST BE DEPOSITED IN THE BID BOX SITUATED AT:**  Necsa Gate 3  R104 Elias Motsoaledi Street (Church Street West Ext)  Pelindaba  Brits Magisterial District  Madibeng Municipality  North West  0240  The physical size of the Bid Response must be limited to 400mm x 100mm x 150mm as the Tender Box aperture cannot accommodate larger sizes. |
| **ENQUIRES:** | Mr. Buyani Nsibande  **Email**: [scm@necsa.co.za](mailto:Buyani.nsibande@necsa.co.za)  **Tel:** +27 (0) 12 305 6072  Clarity seeking question must be sent at least three (3) working days before the closing date. |

**THIS BID IS SUBJECT TO THE PREFERENTIAL PROCUREMENT POLICY FRAMEWORK ACT AND THE PREFERENTIAL PROCUREMENT REGULATIONS, 2022, THE GENERAL CONDITIONS OF CONTRACT (GCC) AND, IF APPLICABLE, ANY OTHER SPECIAL CONDITIONS OF CONTRACT.**

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1. 1. Introduction
      1. Company Overview

The South African Nuclear Energy Corporation Limited (Necsa) is a state-owned public company (SOC), registered in terms of the Companies Act, (Act No. 61 of 1973), registration number 2000/003735/06.

The Necsa Group engages in commercial business mainly through its wholly-owned commercial subsidiaries: NTP Radioisotopes SOC Ltd (NTP), which is responsible for a range of radiation-based products and services for healthcare, life sciences and industry, and Pelchem SOC Ltd (Pelchem), which supplies fluorine and fluorine-based products. Both subsidiaries, together with their subsidiaries, supply local and global markets, earning valuable foreign exchange for South Africa and are among the best in their field in their respective world markets.

Necsa’s safety, health, environment and quality policies provides for top management commitment to compliance with regulatory requirements of ISO 14001, OHSAS 18001 and RD 0034 (Quality and Safety Management Requirements for Nuclear Installations), ISO 9001 and ISO 17025.

Necsa promotes the science, technology and engineering expertise of South Africa and improves the public understanding of these through regular communications at various forums and outreach programmes to the community. We are a proudly South African company continuously striving, and succeeding in many respects, to be at the edge of science, technology and engineering related to the safe use of nuclear knowledge to improve our world.

* 1. Scope of Work

Bid to supply two 30 kW power supply unit for plasma waste destruction project.

* + 1. Specification / Technical Requirements

The detailed specifications are provided in the following attached document:

Specification No. **AC-RSPVR-SPE-23001: 1** Title Specifications: **Specification for Plasma Power supplies for Plasma Torches**

***Kindly note the power supplies will not be installed at the same time. Testing and Commissioning can be done inconjunction with the manufacturing of the second power supply.***

* + - 1. The bidder shall, based on the overall objective of the scope of work to be performed and the bidders expertise, identify any obvious omissions from the scope that they believe to be essential for meeting the overall objectives. The bidder shall include this into the price of the work to be performed and submit it for negotiation.
      2. The bidder shall, based on the overall objective of the scope of work to be performed and the bidders expertise specify the following:
      3. The bidder shall strictly comply with all technical and commercial requirements of this bid.
      4. A bid with a deviation shall be considered as an alternative bid. These may be evaluated provided that the main bid complies with all requirements supplied. Hourly labour rates shall include all charges and overheads associated with labour, e.g. bonus, overtime or other incentive payments necessary to attract and retain sufficient workforce during the contract period. It shall include daily allowances, fares, transport, subsistence allowances, condition money, national insurance, sick pay and leave, industrial training levy, redundancy payment contribution, provision for protective clothing-tools-and-equipment.
      5. Pricing/Billing Model.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| No | Description | **Quantity** | Price Per unit | Sub Total (Excl.VAT) |
| **1** | **Supply of powder supply to Necsa** | **2** |  |  |
| **2** | Deliver to site (Necsa-Pelindaba Site) | **02** |  |  |
| **3** | Site Acceptance Test | **02** |  |  |
| **4** | Functional Testing | **02** |  |  |
| **5** | Required commissioning | **02** |  |  |
| **6** | Training of Operator | **(Once-off)** |  |  |
| **Total Excluding VAT** | | | |  |
| **Total Including VAT** | | | |  |

* + 1. Project Plan and Schedule
       1. The bidder is required to provide a detailed project plan and schedule based on manufacturing, delivery, installation, commissioning, and training periods. The schedule shall be from the date of awarding of contract.
       2. The final delivery date, start and end dates or duration will be negotiated and fixed once the contract is awarded.
    2. Applicable Necsa Policies
       1. The following Necsa policies must be adhered to:

|  |  |
| --- | --- |
| SHEQ-INS-0100 | Necsa General Safety, Health and Environmental Policy. |
| SHEQ-INS-0102 | Necsa Alcohol and Drug Policy. |
| FBD-SCM-2017-PRO-0001 | Procedure for Necsa’s Supply Chain Management Process. |

* 1. Applicable Necsa Procedures
     1. Requirements to Access Necsa Site
        1. As Necsa site is a National Key Point, access for tenderers is restricted to the building where the equipment will be housed.
        2. Access to any other area will only be allowed when escorted by a Necsa staff member who is conversant with the security and safety requirements and conditions of the specific area.
        3. The system will be installed in a radiological area (currently white contamination and radiation).
        4. The Necsa Contact Person for this bid will make arrangements for site access after receipt of the following information, which shall be verified on the provision of a South African Identification Document or Driver’s License:

|  |
| --- |
| Full names and surname |
| ID or passport number |
| Mobile or work telephone number |
| Employer name and phone number |
| Vehicle registration number |

* + - 1. In the case of foreign citizens, whether visitors to South Africa or residents in the country, a copy or scan of the passport must be submitted at least four (4) weeks before the date required to enter the Necsa site.
      2. Nobody will be allowed to enter the site if they are not in possession of a valid identification document.
    1. Emergencies, Incidents, Accidents
    2. Necsa Health, Safety and Environmental Requirements
       1. The bidder shall submit its company Health, Safety and Environmental (SHE) Policy with the bid. It shall reflect the intention to submit a SHE Plan in relation to the work that will be performed.
    3. Necsa Requirements for Quality
       1. The bidder shall submit its company Quality Policy with its bid. It shall reflect the intention to submit a Quality Plan for ensuring all deliverables comply with the bid specifications.
    4. Necsa Requirements for Project SHEQ
       1. Necsa’s SHEQ Project Approval Process prescribes that all planned projects or project phases be assessed for compliance with Necsa’s SHEQ requirements (SHEQ-INS-0823).
    5. Confidentiality
       1. Bidders shall handle the contents of this document as confidential and private and may not disclose it to a third party or publish it in any way whatsoever.
       2. The signing of Necsa’s Confidentiality agreement will only be required if information of a confidential nature is provided to the bidders. Normally this is only required on entering into a contract, and is not part of the bid documentation.

1. 1. Instruction to Bidders
      1. General
         1. Bidders must familiarise themselves with and comply with the mandatory requirements as required, on the appropriate dates.
      2. Bidder Information
         1. The required information on the bidder must be completed as stipulated in Paragraph 7. Failure to do so may result in disqualification.
         2. Bidder to provide solvency statement signed by a qualified authority that the financial position of the bidder is sound and that the company will be able to mobilise the required resources for the execution of this contract.
         3. The successful bidder shall demonstrate to Necsa that adequate pre-employment screening, including security screening, was performed on their employees/ sub-contractors (staff). Note: this is only applicable to employees or sub-contractors that will be involved in installation, commissioning and training.
         4. The pre-employment screening shall as a minimum be able to:
            1. Authenticate that staff are who they claim to be;
            2. Confirm that staff have a right to work in the RSA;
            3. Obtain written declaration from staff of any criminal record; and
            4. Confirm that staff possesses the relevant qualifications to undertake the duties effectively and safely.
         5. The successful bidder shall deploy competent staff, supervision and labour who are appropriately experienced and trained for the work they are to undertake.
         6. Necsa and its representatives may seek formal assurance to this effect (including a formal audit) at any time during the contract period.
      3. Consortium
         1. Bidders forming part of a Consortium must submit with their bid a copy of their Consortium agreement in a separate attachment. This must clearly indicate:
            1. The form of agreement;
            2. The respective roles and responsibilities of the members;
            3. The identity of the lead company which will have the overall project responsibility;
            4. The name and address of the officer acting as the single point of contact for all communications between NECSA and the tenderers. He shall be fully empowered to act on behalf of all members; and
            5. The member’s agreement to be jointly and severally liable to NECSA for the performance of the contract.
      4. Sub-contracting
         1. Bidders must detail any work to be sub-contracted, and the proposed sub-contractor(s) to be used.
         2. Necsa reserves the right to reject the use of any of the bidder’s proposed subcontractors and any subcontractor proposed during the contract term.
         3. Bidders are advised that Necsa will not respond to any direct approach from potential sub-contractors for details in respect of any particular item in this bid.
      5. Necsa’s Bidding Rights
         1. Necsa reserves the right to:
            1. Extend the closing date;
            2. Verify any information contained in a proposal;
            3. Request documented proof regarding any bid issue;
            4. Give preference to locally manufactured goods or locally sourced services;
            5. Issue follow-up or supplementary questions during the response period or after receipt of tenders;
            6. Make known to all bidders any questions submitted by a bidder including commercial and technical clarifications, together with the answers given to any individual bidder, if it is considered to be relevant to the tender; and
            7. Cancel or withdraw this request for tender as a whole or in part.
         2. As part of the evaluation process, NECSA may require bidders to arrange and/ or participate in one or more of the following:
            1. Interviews with, or written references from, nominated reference;
            2. Reference site visits to the location(s) of nominated reference;
            3. Interviews with bidder personnel who would be involved in the contract execution (day-to-day operations of the site);
         3. Negotiations with the bidders.
         4. The successful bidder shall deploy competent staff, supervision and labour who are appropriately experienced and trained for the work they are to undertake.
         5. Necsa and its representatives may seek formal assurance to this effect (including a formal audit) at any time during the contract period.
         6. Should a Bidder have reasons to believe that the Technical Specification is not open and/ or is written for a particular brand or product; the Bidder shall notify SCM before closing date.
         7. Necsa will not necessarily accept the lowest or any tender, and it reserves the right to accept a tender as a whole or in part.
         8. Necsa shall accept no liability in respect of any loss or damage which may incur in the preparation and admission of this tender.
         9. Bidders shall handle the contents of this document as confidential and private and may not disclose it to a third party or publish in any way whatsoever.
         10. Your designation as a successful bidder creates no legal connection with Necsa until such time as a written agreement/order has been negotiated and conducted with you. This tender document will form part of the agreement.
         11. Bidders shall ensure that they are fully informed on the service which must be rendered and what is required from the tenderer.
         12. The successful bidder will be required to register as a supplier/service provider of Necsa if not already registered as a supplier.
         13. Necsa is under no obligation to award a purchase order as a result of this tender.
      6. Bidding Process
         1. Bidders must familiarise themselves with and comply with the procurement timetable as required, on the appropriate dates. Necsa is unlikely to be able to offer much flexibility to this timetable.
         2. Bidders are required to:
            1. Respond in the English language;
            2. A cover letter on the bidders company letterhead with clear reference to the bid of interest should accompany both the technical and pricing proposals;
            3. All copies of the tender response must have signatures on the Declaration of Compliance to the Necsa Contact Person;
            4. Ensure that all document attachments are clearly marked and bound in a clear, logical and well-marked format with a table of contents ensuring ease of finding individual documents or sections; and
            5. The original document must be signed in black ink by an authorised person, agent or representative and each and every page of the bidding documents shall contain the initials of the same signatory.
         3. All costing and information must be typed and signed by the bidder; no hand written costing/ pricing will be accepted.
         4. All bids in this regard shall be accepted if they have been placed in the tender box by the closing date stipulated. **Late bid submissions will not be considered.**
      7. Bid Submission Requirements
         1. Bidders must submit their responses and all supporting documents in properly labelled and sealed envelopes clearly as follows:
            1. Technical Proposal – Envelope One must include:

|  |  |
| --- | --- |
|  | a set of two (2) hard copies (one (1) original and one (1) copies) and one (1) electronic copy (on disk or memory stick).  **No pricing information must be included in Envelope One.**  The physical size of the Response must be limited to 400mm x 100mm x 150mm as the Tender Box aperture cannot accommodate larger sizes. |

* + - * 1. Pricing Proposal – Envelope Two must include:

|  |  |
| --- | --- |
|  | a set of two (2) hard copies (one (1) original and one (1) copy) and one (1) electronic copy (on disk or memory stick).  **All compulsory returnable documents must be included in Envelope Two.**  **The physical size of the Response must be limited to 400mm x 100mm x 150mm as the Tender Box aperture cannot accommodate larger sizes.** |

* + - 1. No proposal shall be accepted by Necsa if submitted in any manner other than as prescribed above.
  1. Eligibility Requirements
     1. Pre-qualification Criteria

Non-compliance to the following pre-qualification criteria will result in automatic disqualification:

| **Item** | **Requirement** | **Yes/No** |
| --- | --- | --- |
| 1 | Bidder company information (Paragraph 7) |  |
| 2 | Proof of National Treasury Central Supplier Database registration/summary report (refer to SBD1) |  |
| 3 | Specification Compliant  **No. AC-RSPVR-SPE-23001: 1** Title Specifications: **Specification for Plasma Power supplies for Plasma Torches** (Refer to annexure A) |  |

* + 1. Technical / Functional Evaluation Criteria

| **Item** | | **Requirement** | **Weight** | **Points** | **Criteria** |
| --- | --- | --- | --- | --- | --- |
| 1 | Experience in manufacturing and designing of the required equipment.   * Include summaries of similar design and installation performed in the last 5 years, together with associated recommendation letters from the relevant clients indicating satisfactory completion of these projects. | | 40 | 40 | Has completed more than 5 projects of the required equipment in the past five years. |
| 30 | Has completed between 3 and 5 projects of the required equipment in the past five years. |
| 20 | Has completed at least 2 projects of the required equipment in the past five years. |
| 0 | No projects. |
| 2 | Delivery Time (From the date of placement of an order) | | 60 | 10 | Quoted time to commission more than 6 months |
| 40 | Quoted time to commission between 04 and 6 months |
| 60 | Quoted time to deliver less than 4 months |
| Total | | | **100** |  |  |

**Note: Bidders that score <80 out of a 100 in respect of Technical / Functional Evaluation Criteria will be regarded as submitting a non-responsive bid and will not be evaluated further.**

* + 1. Specific Goal and Price Evaluation Criteria
       1. Each tender that obtained the minimum qualifying score for functionality must be evaluated further in terms of price and the preference point system.
    2. 80/20 preference point system for acquisition of goods or services for Rand value equal to or above R30 000 and up to R50 million
       1. 5.4.1 The following formula must be used to calculate the points out of 80 for price in respect of a tender with a Rand value equal to or above R30 000 and up to a Rand value of R50 million, inclusive of all applicable taxes:

Where-

Ps = Points scored for price of tender under consideration

Pt = Price of tender under consideration; and

Pmin = Price of lowest acceptable tender.

* + - 1. The following table must be used to calculate the score out of 20 for specific goal:

| **Ownership** | **Number of Points** |
| --- | --- |
| 100% black ownership | 20 |
| At least more than 51% black ownership | 15 |
| Less than 51 % black owned but more than 40% black ownership. | 10 |
| Less than 40% black ownership and more than 0% black ownership. | 05 |
| 0% black ownership | 0 |

* + - 1. A tenderer must submit proof of its B-BBEE status level of contributor (Specific goal).
      2. A tenderer failing to submit proof of specific goal, may not be disqualified, but:
         1. May only score points out of 80 for price; and

Score 0 points out of 20 for specific goal.

* + - 1. The points scored by a tenderer for a specific goal must be added to the points scored for price and the total must be rounded off to the nearest two decimal places.
      2. Subject to sub regulation 4(4), the contract must be awarded to the tenderer scoring the highest points.
      3. If the price offered by a tenderer scoring the highest points is not market-related, the organ of state may not award the contract to that tenderer.
      4. The organs of state may:
         1. Negotiate a market-related price with the tenderer scoring the highest points or cancel the tender;
         2. If the tenderer does not agree to a market-related price, negotiate a market-related price with the tenderer scoring the second highest points or cancel the tender;
         3. If the tenderer scoring the second highest points does not agree to a market-related price, negotiate a market-related price with the tenderer scoring the third highest points or cancel the tender; or
         4. If a market-related price is still not agreed the organ of state must cancel the tender.

1. 1. Returnable documents Checklist

Please indicate that all mandatory documents are included in this bid by ticking the boxes in the checklist below. Responses received without all required documents will be considered invalid. Please also indicate where additional documents have been submitted to the main tender response.

* + 1. Mandatory Documents
       1. ☐ Bidder’s Information (Paragraph 7)
       2. ☐ Original good standing letter from SARS (Tax clearance) OR a letter from SARS with PIN number issued for TAX compliance status.
       3. ☐ If a Consortium, Joint Venture or Sub-contractor, a valid Tax Clearance Certificate for each member.
       4. ☐ Bidder Company to provide at least 12 month guarantee after commissioning.
       5. ☐ Bidder Company to clearly indicate and proof that the proposed system complies with the specification provided. Any alternative to be clearly defined and motivated.
       6. ☐ Valid Compensation Commissioner Fund: Letter of good standing (COIDA).
       7. ☐ Proof of National Treasury Central Supplier Database registration/summary report (refer to SBD1).
    2. Price
       1. ☐ Price Breakdown.
    3. Compliance Documents
       1. ☐ SBD 1 Invitation to Bid.
       2. ☐ SBD 3.1 Pricing Schedule – Firm Prices.
       3. ☐ SBD 4 Declaration of Interest.
       4. ☐ SBD 5 National Industrial Participation Programme.
       5. ☐ SBD 6.1 Preference points claim form in terms of the preferential procurement regulations 2017.
       6. ☐ SBD 7.1 Contract Form – Purchase of Goods/ Works.
       7. ☐ SBD 8 Declaration of Bidder’s Past Supply Chain Management Practices.
       8. ☐ SBD 9 Certificate of Independent Bid Determination.
       9. ☐ Necsa Terms and Conditions of Contract.
       10. ☐ Necsa Confidentiality Agreement.
       11. ☐ Necsa Alcohol and Drug Control Policy.
       12. ☐ Necsa Safety, Health and Environmental Policy.
  1. Bidder Information

The following information must be completed. Failure to do so may result in disqualification.

|  |  |
| --- | --- |
| **BIDDER INFORMATION** | |
| Bidder Name: |  |
| Registration Number: |  |
| VAT Registration Number: |  |
| Bidding Structure (Individual, Joint Venture, Consortium, Sub-contractors) |  |
| Contact Person: |  |
| Telephone Number: |  |
| Fax Number: |  |
| Email Address: |  |
| Postal Address: |  |
| Physical Address: |  |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **HAS A TAX CLEARANCE AND PIN BEEN SUBMITTED?** | | | **Yes** | |  | **No** | |  |
|  | | | | | | | | |
| **IF YES, PLEASE INDICATE THE EXPIRY DATE** | **D** | **D** | **M** | **M** | **Y** | **Y** | **Y** | **Y** |
|  | | | | | | | | |
| **IS A VALID BBBEE CERTIFICATE BEEN SUBMITTED?** | | | **Yes** | |  | **No** | |  |
|  | | | | | | | | |
| **IF YES, PLEASE INDICATE THE EXPIRY DATE** | **D** | **D** | **M** | **M** | **Y** | **Y** | **Y** | **Y** |

If bidding as a Joint Venture, Consortium or Sub-Contractors, complete the following company information.

|  |  |
| --- | --- |
| **Name of Company (1):** | |
| Registration Number: |  |
| VAT Registration Number: |  |
| Contact Person: |  |
| Telephone Number: |  |
| Fax Number: |  |
| Email Address: |  |
| Postal Address: |  |
| Physical Address: |  |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **HAS A TAX CLEARANCE AND PIN BEEN SUBMITTED?** | | | **Yes** | |  | **No** | |  |
|  | | | | | | | | |
| **IF YES, PLEASE INDICATE THE EXPIRY DATE** | **D** | **D** | **M** | **M** | **Y** | **Y** | **Y** | **Y** |
|  | | | | | | | | |
| **IS A VALID BBBEE CERTIFICATE BEEN SUBMITTED?** | | | **Yes** | |  | **No** | |  |
|  | | | | | | | | |
| **IF YES, PLEASE INDICATE THE EXPIRY DATE** | **D** | **D** | **M** | **M** | **Y** | **Y** | **Y** | **Y** |

|  |  |
| --- | --- |
| **Name of Company (2):** | |
| Registration Number: |  |
| VAT Registration Number: |  |
| Contact Person: |  |
| Telephone Number: |  |
| Fax Number: |  |
| Email Address: |  |
| Postal Address: |  |
| Physical Address: |  |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **HAS A TAX CLEARANCE AND PIN BEEN SUBMITTED?** | | | **Yes** | |  | **No** | |  |
|  | | | | | | | | |
| **IF YES, PLEASE INDICATE THE EXPIRY DATE** | **D** | **D** | **M** | **M** | **Y** | **Y** | **Y** | **Y** |
|  | | | | | | | | |
| **IS A VALID BBBEE CERTIFICATE BEEN SUBMITTED?** | | | **Yes** | |  | **No** | |  |
|  | | | | | | | | |
| **IF YES, PLEASE INDICATE THE EXPIRY DATE** | **D** | **D** | **M** | **M** | **Y** | **Y** | **Y** | **Y** |

|  |  |
| --- | --- |
| **Name of Company (3):** | |
| Registration Number: |  |
| VAT Registration Number: |  |
| Contact Person: |  |
| Telephone Number: |  |
| Fax Number: |  |
| Email Address: |  |
| Postal Address: |  |
| Physical Address: |  |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **HAS A TAX CLEARANCE AND PIN BEEN SUBMITTED?** | | | **Yes** | |  | **No** | |  |
|  | | | | | | | | |
| **IF YES, PLEASE INDICATE THE EXPIRY DATE** | **D** | **D** | **M** | **M** | **Y** | **Y** | **Y** | **Y** |
|  | | | | | | | | |
| **IS A VALID BBBEE CERTIFICATE BEEN SUBMITTED?** | | | **Yes** | |  | **No** | |  |
|  | | | | | | | | |
| **IF YES, PLEASE INDICATE THE EXPIRY DATE** | **D** | **D** | **M** | **M** | **Y** | **Y** | **Y** | **Y** |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| I CERTIFY THAT THE INFORMATION PROVIDED ON THIS FORM IS TRUE AND CORRECT.  I FURTHER ACCEPT THAT, IN ADDITION TO CANCELLATION OF CONTRACT, ACTION MAY BE TAKEN AGAINST ME SHOULD THIS DECLARATION PROVE TO BE FALSE. | | | | |
|  | |  |  | |
| **SIGNATURE OF BIDDER (DULY AUTHORISED)** | |  | **DATE** | |
|  |  | | |  |
| **CAPACITY UNDER WHICH THIS BID IS SIGNED** | | | | |

* 1. Annexure

Annexure: A

***Specification***

The power supply unit (PSU) should be able to operate in conjunction with a Necsa designed non‑transferred arc plasma torch.

The PSU should have the functionality of:

|  |  |  |
| --- | --- | --- |
| **Description** | **Compliant or Non-compliant** | **Comments** |
| Supply power to a plasma torch (30 kW) |  |  |
| Current Controlled 200 A max |  |  |
| Automatic start-up |  |  |
| Automatic Gas Flow Controller |  |  |
| Safety interlocks |  |  |
| Local Control Panel / touch screen |  |  |
| All control functions will be on the touch screen |  |  |
| Remote control and monitor interface |  |  |
| Multi-phase functional programming for start-up and shut down purposes |  |  |
| Requirement: The PSU will be designed for a 10-15 Year period of operation. |  |  |

***Input Specification:***

|  |  |  |  |
| --- | --- | --- | --- |
| **Description** | | **Compliant or Non-compliant** | **Comments** |
| Nominal Voltage 3 phase, 3 wire + ground | 380 VAC (operating range 342 - 440 VAC) |  |  |
| Frequency | 50 through 400 Hz (operating range 45 Hz to 440 Hz) |  |  |
| Power Factor | Greater than 85% at maximum power |  |  |
| Input Current | 50A @ 25kW per phase (maximum power) |  |  |
| Efficiency | >80% |  |  |

***Output Specification:***

|  |  |  |  |
| --- | --- | --- | --- |
| **Description** | | **Compliant or Non-compliant** | **Comments** |
| Ripple | < 2% at full load |  |  |
| Voltage | 150V DC |  |  |
| Current | 200A DC |  |  |
| Open Circuit | 185 V |  |  |
| Response | 10 ms to recover within ±1% of regulated output with a 50% to 100% or 100% to 50% step load change |  |  |
| Efficiency | ≥ 80% |  |  |
| Stability | ± 0.5% for 8 hrs. after 30 min. warmup |  |  |
| Isolation | User inputs and outputs: referenced to earth ground. Maximum input voltage to ground: ±1000 Vac Maximum output voltage to ground: ±1000 Vdc for models less than or equal to 1000 Vdc, |  |  |

***Physical Specifications***

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Description** | | | **Compliant or Non-compliant** | **Comments** |
| Power | Size (H" x D" x W") | Weight |  |  |
| 30 kW | 120 x 60 x 50 cm | 180 kg |  |  |

***Control Specifications***

|  |  |  |  |
| --- | --- | --- | --- |
| **Description** | | **Compliant or Non-compliant** | **Comments** |
| Voltage Programming Accuracy | ± 0.5% of full scale voltage |  |  |
| OVT Programming Accuracy | ± 0.5% of full scale voltage |  |  |
| Current Programming Accuracy | ± 0.5% of full scale current |  |  |
| OCT Programming Accuracy | ± 0.5% of full scale current |  |  |
| Gas Flow Programming Accuracy | ± 0.5% of full scale set point |  |  |
| Voltage Readback Accuracy | ± 0.2% of full scale voltage |  |  |
| Current Readback Accuracy | ± 0.2% of full scale current |  |  |
| Start-up | Automatic |  |  |
| Gas flow | Automatic |  |  |
| Communications | RS485 |  |  |

***Environmental Specifications***

|  |  |  |  |
| --- | --- | --- | --- |
| **Description** | | **Compliant or Non-compliant** | **Comments** |
| Operating Temperature | 0°C to 80°C |  |  |
| Storage Temperature | -25°C to +85°C |  |  |
| Ambient Temperature | 0 to 40°C |  |  |
| Air Cooling | Side air inlet, rear / top exhaust |  |  |
| Water Cooling | 25°C maximum inlet temperature 12 LPM minimum flow rate for 25 kW  4 Bar maximum pressure 1/2” NPT female pipe size |  |  |