

BIDDING DOCUMENTS

Issued on: 11 November 2015

**For**

**Procurement of Electrical Generators, Distribution Transformers, Electrical Panels and Cables**

**Bid No.: BID-090-GOO-ICB/15**

**Project: Several Projects**

**Purchaser:** Several Implementing Entities represented by: SRTF Yönetim Hizmetleri A. Ş., Turkey

**Table of Contents**

[**PART 1: (Bidding Documents) 3**](#_Toc432412488)

[Section I: Instruction to Bidders (ITB) 4](#_Toc432412489)

[Section II: Bidding Data Sheet (BDS) 27](#_Toc432412490)

[Section III: Evaluation and Qualification Criteria (EQC) 33](#_Toc432412491)

[Section IV: Bidding Forms 37](#_Toc432412492)

[Section V: Eligible Countries (EC) 51](#_Toc432412493)

[**PART 2 – Supply Requirements 53**](#_Toc432412494)

[Section VI: Schedule of Requirements 54](#_Toc432412495)

[**PART 3 - Contract 224**](#_Toc432412496)

[Section VII: General Conditions of Contract 225](#_Toc432412497)

[Section VIII: Special Conditions of Contract 227](#_Toc432412498)

[Section IX: Contract Forms 232](#_Toc432412499)

PART 1: (Bidding Documents)

Section I: Instruction to Bidders (ITB)

**Table of Content**

[A. General 7](#_Toc432415597)

[Scope of Bid 7](#_Toc432415598)

[Source of Funds 7](#_Toc432415599)

[Fraud and Corruption 7](#_Toc432415600)

[Eligible Bidders 9](#_Toc432415601)

[Eligible Goods and Services 10](#_Toc432415602)

[B. Contents of Bidding Documents 11](#_Toc432415603)

[Sections of Bidding Documents 11](#_Toc432415604)

[Clarification of Bidding Documents 11](#_Toc432415605)

[Amendment of Bidding Documents 12](#_Toc432415606)

[C. Preparation of Bids 12](#_Toc432415607)

[Cost of Bidding 12](#_Toc432415608)

[Language of Bid 12](#_Toc432415609)

[Documents Comprising the Bid 12](#_Toc432415610)

[Bid Submission Form and Price Schedules 13](#_Toc432415611)

[Alternative Bids 13](#_Toc432415612)

[Bid Prices and Discounts 13](#_Toc432415613)

[Currencies of Bid 14](#_Toc432415614)

[Documents Establishing the Eligibility of the Bidder 14](#_Toc432415615)

[Documents Establishing the Eligibility of the Goods and Related Services 15](#_Toc432415616)

[Documents Establishing the Conformity of the Goods and Related Services 15](#_Toc432415617)

[Documents Establishing the Qualifications of the Bidder 15](#_Toc432415618)

[Period of Validity of Bids 16](#_Toc432415619)

[Bid Security 16](#_Toc432415620)

[Format and Signing of Bid 18](#_Toc432415621)

[D. Submission and Opening of Bids 18](#_Toc432415622)

[Submission, Sealing and Marking of Bids 18](#_Toc432415623)

[Deadline for Submission of Bids 19](#_Toc432415624)

[Late Bids 19](#_Toc432415625)

[Withdrawal, Substitution, and Modification of Bids 19](#_Toc432415626)

[Bid Opening 20](#_Toc432415627)

[Confidentiality 21](#_Toc432415628)

[Clarification of Bids 21](#_Toc432415629)

[Responsiveness of Bids 21](#_Toc432415630)

[Nonconformities, Errors, and Omissions 22](#_Toc432415631)

[Preliminary Examination of Bids 22](#_Toc432415632)

[Conversion to Single Currency 23](#_Toc432415633)

[Domestic Preference 23](#_Toc432415634)

[Evaluation of Bids 24](#_Toc432415635)

[Comparison of Bids 25](#_Toc432415636)

[Post-qualification of the Bidder 25](#_Toc432415637)

[Purchaser’s Right to Accept Any Bid, and to Reject Any or All Bids 25](#_Toc432415638)

[Award Criteria 25](#_Toc432415639)

[Purchaser’s Right to Vary Quantities at Time of Award 25](#_Toc432415640)

[Notification of Award 25](#_Toc432415641)

[Performance Security 26](#_Toc432415642)

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| 1. General | |
| Scope of Bid | * 1. The Purchaser (hereinafter called also Recipient or Implementing entity or Beneficiary[[1]](#footnote-1)), **indicated in the Bidding Data Sheet (BDS),** issues these Bidding Documents for the supply of Goods and Related Services incidental thereto or other Non-consultant Services as specified in Section VI, Schedule of Requirements. The name and identification number of this International Competitive Bidding (ICB) procurement are **specified in the BDS.** The name, identification, and number of lots (if any) are **provided in the BDS.**   2. Throughout these Bidding Documents:  the term “in writing” means communicated in written form (e.g. by mail, e-mail, fax, telex) with proof of receipt;if the context so requires, “singular” means “plural” and vice versa; and“day” means calendar day. |
| Source of Funds | * 1. The Recipient **specified in the BDS** has received financing (hereinafter called “funds”) from the Syria Recovery Trust Fund (hereinafter called “SRTF”) through SRTF Yönetim Hizmetleri A. Ş., Turkey (translated: SRTF Management Services JSC) (hereinafter called “Syria A.S.”) toward the cost of the project **named in the** **BDS.** The Recipient intends to apply a portion of the funds to eligible payments under the contract for which these Bidding Documents are issued.   2. Payments by SRTF will be made only at the request of the Recipient and upon approval by Syria A.S. or SRTF in accordance with the terms and conditions of the financing agreement between the Recipient and Syria A.S. (hereinafter called the Financing Agreement), and will be subject in all respects to the terms and conditions of that Financing Agreement. No party other than the Recipient shall derive any rights from the Financing Agreement or have any claim to the funds. |
| Fraud and Corruption | 3.1 It is SRTF’s policy to require that Recipients, as well as bidders, suppliers, and contractors and their agents (whether declared or not), personnel, subcontractors, sub-consultants, service providers and suppliers under SRTF-financed contracts, observe the highest standard of ethics during the procurement and execution of such contracts.[[2]](#footnote-2) In pursuance of this policy, SRTF:  (a) defines, for the purposes of this provision, the terms set forth below as follows:  (i) “corrupt practice” is the offering, giving, receiving or soliciting, directly or indirectly, of anything of value to influence improperly the actions of another party[[3]](#footnote-3);  (ii) “fraudulent practice” is any act or omission, including a misrepresentation, that knowingly or recklessly misleads, or attempts to mislead, a party to obtain a financial or other benefit or to avoid an obligation[[4]](#footnote-4);  (iii) “collusive practice” is an arrangement between two or more parties[[5]](#footnote-5) designed to achieve an improper purpose, including to influence improperly the actions of another party;  (iv) “coercive practice” is impairing or harming, or threatening to impair or harm, directly or indirectly, any party or the property of the party to influence improperly the actions of a party[[6]](#footnote-6);  (v) “obstructive practice” is  (aa) deliberately destroying, falsifying, altering or concealing of evidence material to the investigation or making false statements to investigators in order to materially impede a SRTF investigation into allegations of a corrupt, fraudulent, coercive or collusive practice; and/or threatening, harassing or intimidating any party to prevent it from disclosing its knowledge of matters relevant to the investigation or from pursuing the investigation; or  (bb) acts intended to materially impede the exercise of SRTF’s inspection and audit rights provided for under sub-clause 3.1 (e) below.  (b) will reject a proposal for award if it determines that the bidder recommended for award has, directly or through an agent, engaged in corrupt, fraudulent, collusive, coercive or obstructive practices in competing for the contract in question;  (c) will cancel the portion of the financial support allocated to a contract if it determines at any time that representatives of the Recipient of the financial support engaged in corrupt, fraudulent, collusive, or coercive practices during the procurement or the execution of that contract, without the Recipient having taken timely and appropriate action satisfactory to SRTF to address such practices when they occur.  3.2 In further pursuance of this policy, Bidders shall permit SRTF to inspect any accounts and records and other documents relating to the Bid submission and contract performance, and to have them audited by auditors appointed by SRTF.  3.3 Furthermore, Bidders shall be aware of the provision stated in Sub-Clause 35.1 (a) (iii) of the General Conditions of Contract. |
| Eligible Bidders | * 1. A Bidder, and all parties constituting the Bidder, may have the nationality of any country, subject to the restrictions specified in Section V, Eligible Countries. A Bidder shall be deemed to have the nationality of a country if the Bidder is a citizen or is constituted, incorporated, or registered and operates in conformity with the provisions of the laws of that country. This criterion shall also apply to the determination of the nationality of proposed subcontractors or suppliers for any part of the Contract including Services.   2. Bidders may submit bids, if none of the following reasons for exclusion apply:   (i) Participation of a bidder (or any of its personnel) is ruled out by sanctions issued by the UN Security Council, the EU, the US or any other Donor as listed in Section V;  or   (ii) the bidder is or was involved as a consultant in the preparation or implementation of the Project. The same applies to an enterprise or an individual that is closely connected to the bidder under a company group or a similar business link, or to several enterprises or individuals associated correspondingly;  or   (iii) the bidder is legally barred from the procurement process in its own or any Donor country or the country of the contracting agency on the grounds of previous violations of regulation on fraud and corruption; if the bidder is legally barred from the procurement process in Syria, the exclusion shall only be considered, if it is officially recognized by the National Coalition;  or  (iv) the bidder or sub-contractors to be contracted for considerable portions of the contract are enterprises economically intertwined with the contracting agency (Implementing Entity) in the host country and/or state controlled enterprises that are not legally or financially independent.   * 1. A Bidder and its sub-contractors may not be engaged in financing terrorism, including providing financing or support to any persons who are designated by the U.S. Department of Treasury as “Specially Designated Nationals” or subject to sanctions by the EU.   4.4 A Bidder shall not be under suspension from bidding by the SRTF or the Implementing Entity.  4.5 In the implementation of the project a Bidder must adhere to minimum social standards ("Core Labour Standards") ratified by Syria.  4.6 Bidders shall provide such evidence of their continued eligibility satisfactory to the Purchaser, as the Purchaser shall reasonably request. |
| Eligible Goods and Services | * 1. All the Goods and Services to be supplied under the Contract and financed by SRTF may have their origin in any country in accordance with Section V, Eligible Countries.   2. For purposes of this Clause, the term “goods” includes commodities, raw material, machinery, equipment, and industrial plants; and “services” includes services such as transport, insurance, installation, training, and initial maintenance.   3. The term “origin” means the country where the goods have been mined, grown, cultivated, produced, manufactured or processed; or, through manufacture, processing, or assembly, another commercially recognized article results that differs substantially in its basic characteristics from its components. |
| 1. Contents of Bidding Documents | |
| Sections of Bidding Documents | * 1. The Bidding Documents consist of Parts 1, 2, and 3, which include all the Sections indicated below, and should be read in conjunction with any Addendum issued in accordance with ITB Clause 8.   **PART 1 Bidding Procedures**   * Section I. Instructions to Bidders (ITB) * Section II. Bidding Data Sheet (BDS) * Section III. Evaluation and Qualification Criteria * Section IV. Bidding Forms * Section V. Eligible Countries   **PART 2 Supply Requirements**   * Section VI. Schedule of Requirements   **PART 3 Contract**   * Section VII. General Conditions of Contract (GCC) * Section VIII. Special Conditions of Contract (SCC) * Section IX. Contract Forms   1. The Invitation for Bids issued by the Purchaser is not part of the Bidding Documents.   2. The Purchaser is not responsible for the completeness of the Bidding Documents and their addendum, if they were not obtained directly from the Purchaser.   3. The Bidder is expected to examine all instructions, forms, terms, and specifications in the Bidding Documents. Failure to furnish all information or documentation required by the Bidding Documents may result in the rejection of the bid. |
| Clarification of Bidding Documents | * 1. A prospective Bidder requiring any clarification of the Bidding Documents shall contact the Purchaser in writing at the Purchaser’s address **specified in the** **BDS.** The Purchaser will respond in writing to any request for clarification by publication on the website [www.srtfund.org](http://www.srtfund.org), provided that such request is received no later than twenty-one (21) days prior to the deadline for submission of bids. Should the Purchaser deem it necessary to amend the Bidding Documents as a result of a clarification, it shall do so following the procedure under ITB Clause 8 and ITB Sub-Clause 24.2. |
| Amendment of Bidding Documents | * 1. At any time prior to the deadline for submission of bids, the Purchaser may amend the Bidding Documents by issuing addendum.   2. Any addendum issued shall be part of the Bidding Documents and shall be communicated by publication on the website [www.srtfund.org](http://www.srtfund.org).   3. To give prospective Bidders reasonable time in which to take an addendum into account in preparing their bids, the Purchaser may, at its discretion, extend the deadline for the submission of bids, pursuant to ITB Sub-Clause 24.2 |
| 1. Preparation of Bids | |
| Cost of Bidding | * 1. The Bidder shall bear all costs associated with the preparation and submission of its bid, and the Purchaser shall not be responsible or liable for those costs, regardless of the conduct or outcome of the bidding process. |
| Language of Bid | * 1. The Bid, as well as all correspondence and documents relating to the bid exchanged by the Bidder and the Purchaser, shall be written in English. Supporting documents and printed literature that are part of the Bid may be in another language provided they are accompanied by an accurate translation of the relevant passages into English**,** in which case, for purposes of interpretation of the Bid, such translation shall govern. |
| Documents Comprising the Bid | * 1. The Bid shall comprise the following:  Information Form and Bid Submission Form and the applicable Price Schedules and Technical specifications compatibility table available under Section VI – Schedule of Requirements, in accordance with ITB Clauses 12, 14, and 15;Bid Security or Bid-Securing Declaration, in accordance with ITB Clause 21, if required;written confirmation authorizing the signatory of the Bid to commit the Bidder, in accordance with ITB Clause 22;documentary evidence in accordance with ITB Clause 16 establishing the Bidder’s eligibility to bid;documentary evidence in accordance with ITB Clause 17, that the Goods and Services to be supplied by the Bidder are of eligible origin;documentary evidence in accordance with ITB Clauses 18 and 30, that the Goods and Services conform to the Bidding Documents including technical specifications compatibility table;documentary evidence in accordance with ITB Clause 19 establishing the Bidder’s qualifications to perform the contract if its bid is accepted; andany other document **required in the** **BDS.** |
| Bid Submission Form and Price Schedules | * 1. The Bidder shall submit the Bid Submission Form using the form furnished in Section IV, Bidding Forms. This form must be completed without any alterations to its format, and no substitutes shall be accepted. All blank spaces shall be filled in with the information requested.   2. The Bidder shall submit the Price Schedules for Goods and Services, using the forms furnished in Section IV, Bidding Forms |
| Alternative Bids | * 1. Unless otherwise **specified in the** **BDS,** alternative bids shall not be considered. |
| Bid Prices and Discounts | * 1. The prices and discounts quoted by the Bidder in the Bid Submission Form and in the Price Schedules shall conform to the requirements specified below.   2. All lots and items must be listed and priced separately in the Price Schedules.   3. The price to be quoted in the Bid Submission Form shall be the total price of the bid, excluding any discounts offered.   4. The Bidder shall quote any discounts and indicate the method for their application in the Bid Submission Form. The only applicable condition to the discount refers to the award of two or more lots to the same bidder. Any other condition is not applicable.   5. The terms EXW, CIP, DAP, DDP and other similar terms shall be governed by the rules prescribed in the 2010 edition of Incoterms, published by The International Chamber of Commerce**.**   6. Prices shall be quoted as specified in each Price Schedule included in Section IV, Bidding Forms. The dis-aggregation of price components is required solely for the purpose of facilitating the comparison of bids by the Purchaser. This shall not in any way limit the Purchaser’s right to contract on any of the terms offered. In quoting prices, the Bidder shall be free to use transportation through carriers registered in any eligible country, in accordance with Section V Eligible Countries. Similarly, the Bidder may obtain insurance services from any eligible country in accordance with Section V Eligible Countries. Prices shall be entered in the following manner:   (a) the price of the Goods, as specified in the **BDS**.   1. For services related to the goods to be delivered whenever such Services are specified in the Schedule of Requirements:    1. the price of each item comprising the services (inclusive of any applicable taxes).    2. Prices quoted by the Bidder shall be fixed during the Bidder’s performance of the Contract and not subject to variation on any account, unless otherwise specified in the **BDS.** A Bid submitted with an adjustable price quotation shall be treated as non- responsive and shall be rejected, pursuant to ITB Clause 30. However, if in accordance with the **BDS,** prices quoted by the Bidder shall be subject to adjustment during the performance of the Contract, a bid submitted with a fixed price quotation shall not be rejected, but the price adjustment shall be treated as zero.    3. If so indicated in ITB Sub-Clause 1.1, bids are being invited for individual contracts (lots) or for any combination of contracts (packages). Unless otherwise indicated in the **BDS,** prices quoted shall correspond to 100% of the items specified for each lot and to 100% of the quantities specified for each item of a lot. Bidders wishing to offer any price reduction (discount) for the award of more than one Contract shall specify the applicable price reduction in accordance with ITB Sub-Clause 14.4 provided the bids for all lots are submitted and opened at the same time. |
| Currencies of Bid | * 1. The Bidder may express the bid price in EUR, US$ or in another freely convertible currency of any country with the exception of Syria. If the Bidder wishes to be paid in a combination of amounts in different currencies, it may quote its price accordingly, but shall use no more than three currencies. |
| Documents Establishing the Eligibility of the Bidder | * 1. To establish their eligibility in accordance with ITB Clause 4, Bidders shall complete the Bid Submission Form, included in Section IV, Bidding Forms. |
| Documents Establishing the Eligibility of the Goods and Related Services | * 1. To establish the eligibility of the Goods and Services in accordance with ITB Clause 5, Bidders shall complete the country of origin declarations in the Price Schedule Forms, included in Section IV, Bidding Forms. |
| Documents Establishing the Conformity of the Goods and Related Services | * 1. To establish the conformity of the Goods and Services to the Bidding Documents, the Bidder shall furnish as part of its Bid the documentary evidence that the Goods conform to the technical specifications and standards specified in Section VI, Schedule of Requirements. Additionally, the bidder shall indicate in the technical specifications compatibility table the technical specifications of the offered goods. These technical specifications shall offer performances demonstrating substantial responsiveness to the ones included in the Schedule of Requirements.   2. The documentary evidence may be in the form of literature, drawings or data, and shall consist of a detailed item by item description of the essential technical and performance characteristics of the Goods and Services, demonstrating substantial responsiveness of the Goods and Services to the technical specification, and if applicable, a statement of deviations and exceptions to the provisions of the Schedule of Requirements.   3. The Bidder shall also furnish a list giving full particulars, including available sources and current prices of spare parts, special tools, etc., necessary for the proper and continuing functioning of the Goods during the period **specified in the** **BDS** following commencement of the use of the goods by the Recipient.   4. Standards for workmanship, process, material, and equipment, as well as references to brand names or catalogue numbers specified by the Purchaser in the Schedule of Requirements are intended to be descriptive only and not restrictive. The Bidder may offer other standards of quality, brand names, and/or catalogue numbers, provided that it demonstrates to the Purchaser’s satisfaction, that the substitutions ensure substantial equivalence or are superior to those specified in the Schedule of Requirements. |
| Documents Establishing the Qualifications of the Bidder | * 1. The documentary evidence of the Bidder’s qualifications to perform the contract if its bid is accepted shall establish to the Purchaser’s satisfaction:      1. that, if required in the BDS, a Bidder that does not manufacture or produce the Goods it offers to supply shall submit the Manufacturer’s Authorization using the form included in Section IV, Bidding Forms to demonstrate that it has been duly authorized by the manufacturer or producer of the Goods to supply these Goods in the Purchaser’s Country;      2. that, if **required in the** **BDS,** in case of a Bidder not doing business within the Purchaser’s Country, the Bidder is or will be (if awarded the contract) represented by an Agent in the country equipped and able to carry out the Supplier’s maintenance, repair and spare parts-stocking obligations prescribed in the Conditions of Contract and/or Technical Specifications; and      3. that the Bidder meets each of the qualification criterion specified in Section III, Evaluation and Qualification Criteria. |
| Period of Validity of Bids | * 1. Bids shall remain valid for the period **specified in the** **BDS** after the bid submission deadline date prescribed by the Purchaser. A bid valid for a shorter period shall be rejected by the Purchaser as non-responsive.   2. In exceptional circumstances, prior to the expiration of the bid validity period, the Purchaser may request bidders to extend the period of validity of their bids. The request and the responses shall be made in writing. If a Bid Security is requested in accordance with ITB Clause 21, it shall also be extended for a corresponding period, unless it is still expected to expire at least 28 days after the new deadline. A Bidder may refuse the request without forfeiting its Bid Security. A Bidder granting the request shall not be required or permitted to modify its bid, except as provided in ITB Sub-Clause 20.3. |
| Bid Security | * 1. The Bidder shall furnish as part of its bid, a Bid Security or a Bid-Securing Declaration, if required, as **specified in the** **BDS.** Modalities and conditions allowing the bidders to provide a Bid-Securing Declaration are **specified in the BDS.**   2. The Bid Security shall be calculated according to the methodology **specified in the BDS** and denominated in a freely convertible currency. In case of bid securities in a convertible currency different from the currency selected by the bidder for its own bid, the exchange rate to be used for the conversion in the currency of the bid is the exchange rate (selling price) of the Financial Institution indicated under ITB 34.1 for the day the bid security has been issued. In this case, a minor variation in the value of the Bid Security, i.e. up to minus 2% of the expected value of the Bid Security will not lead to the exclusion of the bidder.  The Bid Security shall:  be in the form of a bank guarantee from a banking institution;be issued by a reputable institution selected by the bidder and located in any eligible country. The banking institution issuing the bid security shall have a correspondent financial institution in Turkey.be substantially in accordance with one of the forms of Bid Security included in Section IV, Bidding Forms, or other form approved by the Purchaser prior to bid submission;be payable promptly upon written demand by the Purchaser in case the conditions listed in ITB Clause 21.5 are invoked;be submitted in its original form; copies will not be accepted;remain valid for the number of days indicated in the BDS after the original deadline for submission of the bid, in accordance with ITB Clause 20.2;  * 1. If a Bid Security or a Bid- Securing Declaration is required in accordance with ITB Sub-Clause 21.1, any bid not accompanied by a substantially responsive Bid Security or Bid Securing Declaration in accordance with ITB Sub-Clause 21.1, shall be rejected by the Purchaser as non-responsive.   2. The Bid Security of unsuccessful Bidders shall be returned as promptly as possible upon the successful Bidder’s furnishing of the Performance Security pursuant to ITB Clause 44.   3. The Bid Security may be forfeited or the Bid Securing Declaration executed:  if a Bidder withdraws its bid during the period of bid validity specified by the Bidder on the Bid Submission Form, except as provided in ITB Sub-Clause 20.2; orif the successful Bidder fails to:sign the Contract in accordance with ITB Clause 43;furnish a Performance Security in accordance with ITB Clause 44.  * 1. The Bid Security or Bid- Securing Declaration of a JV must be in the name of the JV that submits the bid. If the JV has not been legally constituted at the time of bidding, the Bid Security or Bid-Securing Declaration shall be in the names of all future partners as named in the letter of intent mentioned in Section IV “Bidding Forms,” Bidder Information Form Item 7.   2. If a bid security is not required in the BDS, and   3. if a Bidder withdraws its bid during the period of bid validity specified by the Bidder on the Letter of Bid Form, except as provided in ITB 20.2, or   4. if the successful Bidder fails to: sign the Contract in accordance with ITB 43; or furnish a performance security in accordance with ITB 44;   the Recipient may, **if provided for in the BDS**, declare the Bidder disqualified to be awarded a contract by the Purchaser for a period of time **as stated in the BDS**. Bidders disqualified by a Recipient may be disqualified by the SRTF too. |
| Format and Signing of Bid | * 1. The Bidder shall prepare one original of the documents comprising the bid as described in ITB Clause 11 and clearly mark it “Original.” In addition, the Bidder shall submit copies of the bid, in the number specified in the **BDS** and clearly mark them “Copy.” The bidder shall submit an electronic copy of at least the Bid Submission Form, the Price Schedules and technical specifications compatibility tables. In the event of any discrepancy between the original and the copies, the original shall prevail.   2. The original and all copies of the bid shall be typed in indelible ink and shall be signed by a person duly authorized to sign on behalf of the Bidder.   3. Any interlineation, erasures, or overwriting shall be valid only if they are signed or initialed by the person signing the Bid. |
| 1. Submission and Opening of Bids | |
| Submission, Sealing and Marking of Bids | * 1. Bidders may always submit their bids by mail or by hand. When so specified in the **BDS,** bidders shall have the option of submitting their bids electronically.  Bidders submitting bids by mail or by hand, shall enclose the original and each copy of the Bid, including alternative bids, if permitted in accordance with ITB Clause 13, in separate sealed envelopes, duly marking the envelopes as “Original” and “Copy.” These envelopes containing the original and the copies shall then be enclosed in one single envelope. The rest of the procedure shall be in accordance with ITB sub-Clauses 23.2 and 23.3.Bidders submitting bids electronically shall follow the electronic bid submission procedures specified in the **BDS.**  * 1. The inner and outer envelopes shall:  Bear the name and address of the Bidder;be addressed to the Purchaser in accordance with ITB Sub-Clause 24.1;bear the specific identification of this bidding process indicated in ITB 1.1 and any additional identification marks as **specified in the** **BDS;** andbear a warning not to open before the time and date for bid opening, in accordance with ITB Sub-Clause 27.1. 23.3 If all envelopes are not sealed and marked as required, the Purchaser will assume no responsibility for the misplacement or premature opening of the bid. |
| Deadline for Submission of Bids | * 1. Bids must be received by the Purchaser at the address and no later than the date and time **specified** **in the** **BDS.**   2. The Purchaser may, at its discretion, extend the deadline for the submission of bids by amending the Bidding Documents in accordance with ITB Clause 8, in which case all rights and obligations of the Purchaser and Bidders previously subject to the deadline shall thereafter be subject to the deadline as extended. |
| Late Bids | * 1. The Purchaser shall not consider any bid that arrives after the deadline for submission of bids, in accordance with ITB Clause 24. Any bid received by the Purchaser after the deadline for submission of bids shall be declared late, rejected, and returned unopened to the Bidder. |
| Withdrawal, Substitution, and Modification of Bids | * 1. A Bidder may withdraw, substitute, or modify its Bid after it has been submitted by sending a written notice in accordance with ITB Clause 23, duly signed by an authorized representative, and shall include a copy of the authorization (the power of attorney) in accordance with ITB Sub-Clause 22.2, (except that no copies of the withdrawal notice are required). The corresponding substitution or modification of the bid must accompany the respective written notice. All notices must be:  1. submitted in accordance with ITB Clauses 22 and 23 (except that withdrawal notices do not require copies), and in addition, the respective envelopes shall be clearly marked “Withdrawal,” “Substitution,” or “Modification;” and 2. received by the Purchaser prior to the deadline prescribed for submission of bids, in accordance with ITB Clause 24.    1. Bids requested to be withdrawn in accordance with ITB Sub-Clause 26.1 shall be returned unopened to the Bidders.    2. No bid may be withdrawn, substituted, or modified in the interval between the deadline for submission of bids and the expiration of the period of bid validity specified by the Bidder on the Bid Submission Form or any extension thereof. |
| Bid Opening | * 1. The Purchaser shall conduct the bid opening in public at the address, date and time **specified in the** **BDS.** Any specific electronic bid opening procedures required if electronic bidding is permitted in accordance with ITB Sub-Clause 23.1 shall be as **specified in the** **BDS.**   2. First, envelopes marked “Withdrawal” shall be opened and read out and the envelope with the corresponding bid shall not be opened, but returned to the Bidder. If the withdrawal envelope does not contain a copy of the “power of attorney” confirming the signature as a person duly authorized to sign on behalf of the Bidder, the corresponding bid will be opened. No bid withdrawal shall be permitted unless the corresponding withdrawal notice contains a valid authorization to request the withdrawal and is read out at bid opening. Next, envelopes marked “Substitution” shall be opened and read out and exchanged with the corresponding Bid being substituted, and the substituted Bid shall not be opened, but returned to the Bidder. No Bid substitution shall be permitted unless the corresponding substitution notice contains a valid authorization to request the substitution and is read out at bid opening. Envelopes marked “Modification” shall be opened and read out with the corresponding Bid. No Bid modification shall be permitted unless the corresponding modification notice contains a valid authorization to request the modification and is read out at Bid opening. Only envelopes that are opened and read out at Bid opening shall be considered further.   3. All other envelopes shall be opened one at a time, reading out: the name of the Bidder and whether there is a modification; the Bid Prices, including any discounts and alternative offers; the presence of a Bid Security or Bid-Securing Declaration, if required; and any other details as the Purchaser may consider appropriate. Only discounts and alternative offers read out at Bid opening shall be considered for evaluation. No Bid shall be rejected at Bid opening except for late bids, in accordance with ITB Sub-Clause 25.1.   4. The Purchaser shall prepare a record of the Bid opening that shall include, as a minimum: the name of the Bidder and whether there is a withdrawal, substitution, or modification; the Bid Price, per lot if applicable, including any discounts, and alternative offers if they were permitted; and the presence or absence of a Bid Security or Bid-Securing Declaration, if one was required. The Bidders’ representatives who are present shall be requested to sign the attendance sheet. A copy of the record shall be distributed to all Bidders who submitted bids in time, and posted online when electronic bidding is permitted. |
| 1. Evaluation and Comparison of Bids | |
| Confidentiality | * 1. Information relating to the examination, evaluation, comparison, and post qualification of bids, and recommendation of contract award, shall not be disclosed to bidders or any other persons not officially concerned with such process until publication of the Contract Award.   2. Any effort by a Bidder to influence the Purchaser in the examination, evaluation, comparison, and post qualification of the bids or contract award decisions may result in the rejection of its Bid.   3. Notwithstanding ITB Sub-Clause 28.2, from the time of bid opening to the time of Contract Award, if any Bidder wishes to contact the Purchaser on any matter related to the bidding process, it should do so in writing. |
| Clarification of Bids | * 1. To assist in the examination, evaluation, comparison and post-qualification of the bids, the Purchaser may, at its discretion, ask any Bidder for a clarification of its Bid. Any clarification submitted by a Bidder in respect to its Bid and that is not in response to a request by the Purchaser shall not be considered. The Purchaser’s request for clarification and the response shall be in writing. No change in the prices or substance of the Bid shall be sought, offered, or permitted, except to confirm the correction of arithmetic errors discovered by the Purchaser in the Evaluation of the bids, in accordance with ITB Clause 31. |
| Responsiveness of Bids | * 1. The Purchaser’s determination of a bid’s responsiveness is to be based on the contents of the bid itself.   2. A substantially responsive Bid is one that conforms to all the terms, conditions, and specifications of the Bidding Documents without material deviation, reservation, or omission. A material deviation, reservation, or omission is one that:  affects in any substantial way the scope, quality, or performance of the Goods and Services specified in the Contract; orlimits in any substantial way, inconsistent with the Bidding Documents, the Purchaser’s rights or the Bidder’s obligations under the Contract; orif rectified would unfairly affect the competitive position of other bidders presenting substantially responsive bids.  * 1. If a bid is not substantially responsive to the Bidding Documents, it shall be rejected by the Purchaser and may not subsequently be made responsive by the Bidder by correction of the material deviation, reservation, or omission. |
| Nonconformi­ties, Errors, and Omissions | * 1. Provided that a Bid is substantially responsive, the Purchaser may waive any non-conformities or omissions in the Bid that do not constitute a material deviation.   2. Provided that a bid is substantially responsive, the Purchaser may request that the Bidder submit the necessary information or documentation, within a reasonable period of time, to rectify nonmaterial nonconformities or omissions in the bid related to documentation requirements. Such omission shall not be related to any aspect of the price of the Bid. Failure of the Bidder to comply with the request may result in the rejection of its Bid.   3. Provided that the Bid is substantially responsive, the Purchaser shall correct arithmetical errors on the following basis:  if there is a discrepancy between the unit price and the line item total that is obtained by multiplying the unit price by the quantity, the unit price shall prevail and the line item total shall be corrected, unless in the opinion of the Purchaser there is an obvious misplacement of the decimal point in the unit price, in which case the line item total as quoted shall govern and the unit price shall be corrected;if there is an error in a total corresponding to the addition or subtraction of subtotals, the subtotals shall prevail and the total shall be corrected; andif there is a discrepancy between words and figures, the amount in words shall prevail, unless the amount expressed in words is related to an arithmetic error, in which case the amount in figures shall prevail subject to (a) and (b) above.  * 1. If the Bidder that submitted the lowest evaluated Bid does not accept the correction of errors, its Bid shall be rejected. |
| Preliminary Examination of Bids | * 1. The Purchaser shall examine the bids to confirm that all documents and technical documentation requested in ITB Clause 11 have been provided, and to determine the completeness of each document submitted.   2. The Purchaser shall confirm that the following documents and information have been provided in the Bid. If any of these documents or information is missing, the offer shall be rejected.  Bid Submission Form, in accordance with ITB Sub-Clause 12.1;Price Schedules, in accordance with ITB Sub-Clause 12.2;Bid Security or Bid Securing Declaration, in accordance with ITB Clause 21 and 34.1, if applicable.  * 1. The Purchaser may limit the remaining evaluation to the three lowest priced bids (per lot, if applicable) of the bids not rejected after preliminary examination, after correction of arithmetical errors as per clause 31.3,if any, and conversion to a single currency as per clause 34.1, if applicable. If in the course of further evaluation any of the three bids is rejected, the next lowest priced bid shall be added for the evaluation after the preliminary examination. |
| Examination of Terms and Conditions; Technical Evaluation | * 1. The Purchaser shall examine the Bid to confirm that all terms and conditions specified in the GCC and the SCC have been accepted by the Bidder without any material deviation or reservation.   2. The Purchaser shall evaluate the technical aspects of the Bid submitted in accordance with ITB Clause 18, to confirm that all requirements specified in Section VI, Schedule of Requirements of the Bidding Documents have been met without any material deviation or reservation.   3. If, after the examination of the terms and conditions and the technical evaluation, the Purchaser determines that the Bid is not substantially responsive in accordance with ITB Clause 30, it shall reject the Bid. |
| Conversion to Single Currency | * 1. For evaluation and comparison purposes, the Purchaser shall convert all bid prices expressed in amounts in various currencies into an amount in a single currency **specified in the** **BDS,** using the selling exchange rates established by the source and on the date **specified in the** **BDS.** |
| Domestic Preference | * 1. Domestic preference shall not be a factor in bid evaluation**.** |
| Evaluation of Bids | * 1. The Purchaser shall evaluate each bid that has been determined, up to this stage of the evaluation, to be substantially responsive, according to the modalities specified in clause 32.3.   2. To evaluate a Bid, the Purchaser shall only use all the factors, methodologies and criteria defined in ITB Clause 36. No other criteria or methodology shall be permitted.   3. To evaluate a Bid, the Purchaser shall consider the following:  evaluation will be done for Items or Lots, as **specified in the** **BDS;** and the Bid Price as quoted in accordance with clause 14;price adjustment for correction of arithmetic errors in accordance with ITB Sub-Clause 31.3;price adjustment due to discounts offered in accordance with ITB Sub-Clause 14.4;adjustments due to the application of the evaluation criteria **specified in the** **BDS** from amongst those set out in Section III, Evaluation and Qualification Criteria;adjustments due to the application of a margin of preference, in accordance with ITB Clause 35 if applicable.  * 1. The Purchaser’s evaluation of a bid will exclude and not take into account:  any allowance for price adjustment during the period of execution of the contract, if provided in the bid.  * 1. The Purchaser’s evaluation of a bid may require the consideration of other factors, in addition to the Bid Price quoted in accordance with ITB Clause 14. These factors may be related to the characteristics, performance, and terms and conditions of purchase of the Goods and Related Services. The effect of the factors selected, if any, shall be expressed in monetary terms to facilitate comparison of bids, unless otherwise specified in Section III, Evaluation and Qualification Criteria. The factors, methodologies and criteria to be used shall be as specified in ITB 36.3 (d).   2. If so **specified** **in the** **BDS,** these Bidding Documents shall allow Bidders to quote separate prices for one or more lots, and shall allow the Purchaser to award one or multiple lots to more than one Bidder. The methodology of evaluation to determine the lowest-evaluated lot combinations is specified in Section III, Evaluation and Qualification Criteria. |
| Comparison of Bids | * 1. The Purchaser shall compare substantially responsive bids to determine the lowest-evaluated bid, in accordance with ITB Clause 36. |
| Post-qualifica­tion of the Bidder | * 1. The Purchaser shall determine to its satisfaction whether the Bidder that is selected as having submitted the lowest evaluated and substantially responsive bid is qualified to perform the Contract satisfactorily.   2. The determination shall be based upon an examination of the documentary evidence of the Bidder’s qualifications submitted by the Bidder, pursuant to ITB Clause 19.   3. An affirmative determination shall be a prerequisite for award of the Contract to the Bidder. A negative determination shall result in disqualification of the bid, in which event the Purchaser shall proceed to the next lowest evaluated bid to make a similar determination of that Bidder’s capabilities to perform satisfactorily. |
| Purchaser’s Right to Accept Any Bid, and to Reject Any or All Bids | * 1. The Purchaser reserves the right to accept or reject any bid, and to annul the bidding process and reject all bids at any time prior to contract award, without thereby incurring any liability to Bidders. |
| 1. Award of Contract | |
| Award Criteria | * 1. The Purchaser shall award the Contract to the Bidder whose offer has been determined to be the lowest evaluated bid and is substantially responsive to the Bidding Documents, provided further that the Bidder has been determined to be qualified to perform the Contract satisfactorily. |
| Purchaser’s Right to Vary Quantities at Time of Award | * 1. At the time the Contract is awarded, the Purchaser reserves the right to increase or decrease the quantity of Goods and Related Services originally specified in Section VI, Schedule of Requirements, provided this does not exceed the percentages **specified in the BDS,** and without any change in the unit prices or other terms and conditions of the bid and the Bidding Documents. |
| Notification of Award | * 1. Prior to the expiration of the period of bid validity, the Purchaser shall notify the successful Bidder, in writing, that its Bid has been accepted.   2. Until a formal Contract is prepared and executed, the notification of award shall constitute a binding Contract.   3. The Purchaser shall publish on the SRTF website, in UNDB online and in the dgMarket the results identifying the bid and lot numbers and the following information: (i) name of each Bidder who submitted a Bid; (ii) bid prices as read out at bid opening; (iii) bid prices after correction, if any, and (iv) name of the winning Bidder, and the price it offered, as well as the duration and summary scope of the contract awarded. After publication of the award, unsuccessful bidders may request in writing to the Purchaser for a debriefing seeking explanations on the grounds on which their bids were not selected. The Purchaser shall promptly respond in writing to any unsuccessful Bidder who, after Publication of contract award, requests a debriefing.   4. Upon the successful Bidder’s furnishing of the signed Contract Form and performance security pursuant to ITB Clause 44, the Purchaser will promptly notify each unsuccessful Bidder and will discharge its bid security, pursuant to ITB Clause 21.4. |
| Signing of Contract | * 1. Promptly after notification, the Purchaser shall send the successful Bidder the full Contract.   2. Within twenty-eight (28) days of receipt of the full contract, the successful Bidder shall sign, date, and return it to the Purchaser. |
| Performance Security | * 1. Within twenty eight (28) days of the receipt of notification of award from the Purchaser, the successful Bidder, if required, shall furnish the Performance Security in accordance with the GCC, using for that purpose the Performance Security Form included in Section IX Contract forms, or another Form acceptable to the Purchaser. The performance security (in the form of a bank guarantee) will have to be delivered together with the signed contract.   In case of Limited International Bidding (LIB) and a Syrian bidder, exceptionally 10% retention may be applied instead of a Performance Security, but only when the issuing of a Performance Guarantee from a bank is impossible to the satisfaction of Syria A.S. for reasons not related to the Bidder.   * 1. Failure of the successful Bidder to submit the above-mentioned Performance Security or sign the Contract shall constitute sufficient grounds for the annulment of the award and forfeiture of the Bid Security or execution of the Bid-Securing Declaration. In that event the Purchaser may award the Contract to the next lowest evaluated Bidder, whose offer is substantially responsive and is determined by the Purchaser to be qualified to perform the Contract satisfactorily. |

Section II: Bidding Data Sheet (BDS)

**Table of Content**

[A. General 29](#_Toc432415408)

[B. Contents of Bidding Documents 29](#_Toc432415409)

[C. Preparation of Bids 30](#_Toc432415410)

[D. Submission and Opening of Bids 31](#_Toc432415411)

[E. Evaluation and Comparison of Bids 32](#_Toc432415412)

[F. Award of Contract 32](#_Toc432415413)

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| The following specific data for the goods to be procured shall complement, supplement, or amend the provisions in the Instructions to Bidders (ITB). Whenever there is a conflict, the provisions herein shall prevail over those in ITB. | |
| 1. General | |
| **ITB 1.1** | The Purchaser is (1):  Several Implementing Entities represented by SRTF Yönetim Hizmetleri A. Ş., Turkey. The official name of implementing entities will be determined in the contracting phase  (1) Please note: At any rate, the IEs shall be responsible and liable for the Purchaser’s obligations in the execution of any resulting contract”. |
| **ITB 1.1** | The name of this specific bid and identification number of the ICB is:  Procurement of Generators, Distribution Transformers, Electrical Items and Cables  BID-090-GOO-ICB/15  The number, identification and names of the lots comprising this ICB are: 4 (four) Lots with the above mentioned identification number and name as following:  Lot No. 1: Generators  Lot No. 2: Distribution Transformers  Lot No. 3: Electrical Panels  Lot No. 4: Cables |
| **ITB 2.1** | The name of the Projects financing this bid will be determined in the contracting phase. |
| 1. Contents of Bidding Documents | |
| **ITB 7.1** | For **Clarification of bid purposes** only, the Purchaser’s address is:  Attention: Chief of Procurement Section by the SRTF Yönetim Hizmetleri A. Ş., Turkey (acting on behalf and in the name of the IEs)  Address: Budak Mah.Gazi Muhtar Pasa Blv. 10031 Sk. YASEM Is Mrk. No 42/804 – Sehitkamil/Gaziantep  City: Gaziantep  Postal Code: 27090  Country: Turkey  Telephone: +90 (342) 2903692  Fax number: +90 (342) 5011659  Electronic mail address: [*procurement@srtfund.org*](mailto:procurement@srtfund.org) |
| 1. Preparation of Bids | |
| **ITB 11.1 (h)** | **In addition to any other requested document, the Bidder shall submit the document listed below. Please note that these documents do not need to be submitted neither in original nor in certified copy. A simple copy is sufficient in the tender phase. The Purchaser will decide in the contracting phase whether one or more of these documents must be provided in original or in certified copy.**   1. balance sheet and income statement of the last two years for which the accountability has been officially closed, 2. copy of certificate listing the names of the members of the management board as well as the name of the person(s) representing the company, 3. power of attorney demonstrating that the person signing the bid has been delegated by a person that has the necessary authority (e.g. a person representing the company). 4. copy of a certificate proving that the company is not bankrupt, 5. copy of relevant documents (e.g. invoices, acceptance certificates) showing previous experience for similar items in Syria and/or a neighboring country (Turkey, Lebanon, Jordan, Iraq) in the last three years prior to bid submission deadline with a combined value of at least 100,000 Euro, 6. copy of relevant documentation showing the number of staff currently employed (e.g. social security documents). 7. manufacturer’s authorization as per ITB 19.1 (a) |
| **ITB 13.1** | Alternative Bids shall not be considered. |
| **ITB 14.6** | The prices of the Goods shall be quoted DAP Syrian border point export customs cleared and goods loaded on the truck of the recipient. The Border point to be used for the delivery of the goods is Bab Al Hawa/Cilvegözü. |
| **ITB 14.7** | The prices quoted by the Bidder shall not be adjustable. |
| **ITB 18.3** | Period of time the Goods are expected to be functioning (for the purpose of spare parts): “12 months” for lot 1, 2 and 3 |
| **ITB 19.1 (a)** | Manufacturer’s authorization is “required” for line items with a total price above EUR 10,000 (a simple copy is sufficient in the tender phase). |
| ITB 19.1 (b) | After sales service is: “required” for lot 1, 2 and 3 |
| **ITB 20.1** | The bid validity period shall be “90 days”. |
| **ITB 21.1** | * + 1. Bid shall include a Bid Security (issued by bank) included in Section IV Bidding Forms     2. Exceptionally, Syrian bidders that are not in the condition to provide a Bid security in the form of a bank guarantee are allowed to replace it with a “Bid Securing Declaration” using the form included in Section IV Bidding Forms. |
| **ITB 21.2** | The amount of the Bid Security shall be 1% of the bid price.  In case of bid securities in a convertible currency different from the one of the bid offered by the bidder, please refer to ITB 34.1. |
| **ITB 21.7** | If the Bidder incurs in any of the actions prescribed in subparagraphs (a) or (b) of this provision, the SRTF may declare the Bidder ineligible to be awarded contracts for a period of two years. |
| **ITB 22.1** | In addition to the original of the bid, the number of copies is 2 (two). |
| 1. Submission and Opening of Bids | |
| **ITB 23.1** | Bidders shall not have the option of submitting their bids electronically. |
| **ITB 23.1 (b)** | If bidders shall have the option of submitting their bids electronically, the electronic bidding submission procedures shall be: Not applicable |
| **ITB 23.2 (c)** | The inner and outer envelopes shall bear the following additional identification marks: BID-090-GOO-ICB/15 |
| **ITB 24.1** | For bid submission purposes, the Purchaser’s address is:  Attention: Chief of the Procurement Section by the SRTF Yönetim Hizmetleri A. Ş., Turkey (acting on behalf and in the name of several local Implementing Entities)  Address: Budak Mah.Gazi Muhtar Pasa Blv. 10031 Sk. YASEM Is Mrk. No 42/804 – Sehitkamil/GaziantepFloor-Room number: 804  City: Gaziantep  Postal Code: 27090  Country: Turkey  The deadline for the submission of bids is:  Date: 04 January 2016  Time: 03:00 PM (Turkey time) |
| **ITB 27.1** | The bid opening shall take place at: SRTF Yönetim Hizmetleri A. Ş., Turkey (acting on behalf and in the name of several Implementing Entities),  Street Address: Budak Mah.Gazi Muhtar Pasa Blv. 10031 Sk. YASEM Is Mrk. No 42/804 – Sehitkamil/Gaziantep  Floor/ Room number: 804City: Gaziantep  Country: Turkey  Date: 04 January 2016  Time: 04:00 PM (Turkey time) |
| **ITB 27.1** | If electronic bid submission is permitted in accordance with ITB sub-clause 23.1, the specific bid opening procedures shall be: Not Applicable |
| 1. Evaluation and Comparison of Bids | |
| **ITB 34.1** | Bid prices expressed in different currencies shall be converted in: EUR  The source of exchange rate shall be: the European Central Bank, Euro Foreign Exchange rates Euro vs offered currency.  The date for the exchange rate shall be: 21 December 2015 |
| **ITB 36.3 (a)** | Bids will be evaluated lot by lot, as specified under BDS, ITB 1.1.  If a Price Schedule shows items listed but not priced, their prices shall be assumed to be included in the prices of other items.  Bids must cover at least 95 % of line items per lot in order to be considered responsive for such lot. For further evaluation of such bids, if the price schedule of one lot does not include one or more items, their prices for such items will be copied from another bid and more precisely from the bid offering the lowest price for that specific item (provided that the technical specifications offered for that specific item are acceptable). In this way, it may be possible to compare bids including the same items even if each bid does not include all the items. In the contractual phase, each contract will include only the items proposed by the company with the lowest price determined as above specified.  Companies offering the lowest price for single items not included in the bid of the winner will have the possibility to supply them to the purchaser at the price indicated in their offer for that specific item. |
| **ITB 36.3 (d)** | The adjustments shall be determined using the following criteria, from amongst those set out in Section III, Evaluation and Qualification Criteria:   1. the cost of major replacement components, mandatory spare parts, and service: *No* |
| **ITB 36.6** | Bidders may decide to bid for one lot, more lots or all the lots.  Bidders shall not be allowed to quote more than one price per each lot.  Bidders shall not be allowed to submit only one price for two or more lots; each lot must have its own price. |
| 1. Award of Contract | |
| **ITB 41.1** | The maximum percentage by which quantities may be increased is: 25% of value for lot concerned.  The maximum percentage by which quantities may be decreased is: 25% of value for lot concerned. |
| **ITB 42.1** | ITB 42.1 is complemented as follows: Following the notification of award as per last paragraph of the clause 36.3 (a) of the BDS, the bidder has one week to send back his/her acceptance. If the bidder does not reply within one week or reject the award, the award shall be delivered to the second best and so on.  The award letters for the single items will be sent starting from the items which have the lowest prices and are not awarded within the lot. |

Section III: Evaluation and Qualification Criteria (EQC)

**Table of Content**

[A. Evaluation Criteria 35](#_Toc432415769)

[B. Post-qualification Requirements 35](#_Toc432415770)

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| This Section complements the Instructions to Bidders. It contains the criteria that the Purchaser may use to evaluate a bid and determine whether a Bidder has the required qualifications. No other criteria shall be used. | |
| 1. Evaluation Criteria | |
| **TTB 36.3 (d)** | The Purchaser’s evaluation of bids will take into account the bid prices quoted in accordance with ITB and BDS 14.6 for goods and services, if any.  The Purchaser’s evaluation of a bid may take into account, in addition to the Bid Price quoted in accordance with ITB Clause 14.6, one or more of the following factors as specified in ITB Sub-Clause 36.3(d) and in BDS referring to ITB 36.3(d)**,** usingthe following criteria and methodologies.   1. Cost of major replacement components, mandatory spare parts, and service.   Not Applicable.   1. Specific additional criteria:   Not applicable |
| 1. Post-qualification Requirements | |
| **ITB 38.2** | After determining the lowest-evaluated bid in accordance with ITB Sub-Clause 37.1, the Purchaser shall carry out the post-qualification of the Bidder in accordance with ITB Clause 38, using only the requirements specified. Requirements not included in the text below shall not be used in the evaluation of the Bidder’s qualifications.  (a) Financial Capability  The Bidder shall furnish documentary evidence that it meets the following financial requirement(s):  The annual turnover of the bidder for each of the last two accounting years must be at least 5 times the cumulated value of the proposed award.  If the proposed award were for more than one lot, a contract will be awarded for the lot(s) with the highest value within the above minimum financial capability.  The bidder not meeting the above stated minimum financial capability will be considered non-responsive*.*  (b) Experience  The Bidder shall furnish documentary evidence to demonstrate that it meets the following experience requirement(s):  At least three staff currently working for the bidder in fields related to this bid per each lot the bidder applies to.  The bidder has the capacity to guarantee directly or indirectly (through, for instance, an agreement with a specialised mechanical workshop) the execution of maintenance or testing services for the provided equipment in Syria or Turkey.  (c) Technical capacity of the bidder  Bidder has completed successfully the supply of goods to Syria and/or a neighbouring country in the last three years prior to bid submission deadline, with a combined value of at least € 100,000. |

Section IV: Bidding Forms

**Table of Content**

[1. Bidder Information Form 39](#_Toc432414520)

[2. Joint Venture Partner Information Form 40](#_Toc432414521)

[3. Bid Submission Form 41](#_Toc432414522)

[4. Price Schedule Forms 44](#_Toc432414523)

[5. Bid Security (Bank Guarantee) 48](#_Toc432414524)

[6. Bid-Securing Declaration 49](#_Toc432414525)

[7. Manufacturer’s Authorization 50](#_Toc432414526)

1. Bidder Information Form

*[The Bidder shall fill in this Form in accordance with the instructions indicated below. No alterations to its format shall be permitted and no substitutions shall be accepted.]*

Date: *[insert date (as day, month and year) of Bid Submission*]

ICB No.: BID-090-GOO-ICB/15

Page \_\_\_\_\_\_\_\_ of\_ \_\_\_\_\_\_ pages

|  |
| --- |
| 1. Bidder’s Legal Name *[insert Bidder’s legal name]* |
| 2. In case of JV, legal name of each party: *[insert legal name of each party in JV]* |
| 3. Bidder’s actual or intended Country of Registration: *[insert actual or intended Country of Registration]* |
| 4. Bidder’s Year of Registration: *[insert Bidder’s year of registration]* |
| 5. Bidder’s Legal Address in Country of Registration: *[insert Bidder’s legal address in country of registration]* |
| 6. Bidder’s Authorized Representative Information  Name: *[insert Authorized Representative’s name]*  Address: *[insert Authorized Representative’s Address]*  Telephone/Fax numbers: *[insert Authorized Representative’s telephone/fax numbers]*  Email Address: *[insert Authorized Representative’s email address]* |
| 7. Attached are copies of original documents of: *[check the box(es) of the attached original documents]*   Articles of Incorporation or Registration of firm named in 1, above, in accordance with ITB Sub-Clauses 4.1 and 4.2.   * In case of JV, letter of intent to form JV or JV agreement, in accordance with ITB Sub-Clause 4.1. |

2. Joint Venture Partner Information Form

*[The Bidder shall fill in this Form in accordance with the instructions indicated below].*

Date: *[insert date (as day, month and year) of Bid Submission*]

ICB No.: BID-090-GOO-ICB/15

Page \_\_\_\_\_\_\_\_ of\_ \_\_\_\_\_\_ pages

|  |
| --- |
| 1. Bidder’s Legal Name: *[insert Bidder’s legal name]* |
| 2. JV’s Party legal name: *[insert JV’s Party legal name]* |
| 3. JV’s Party Country of Registration: *[insert JV’s Party country of registration]* |
| 4. JV’s Party Year of Registration: *[insert JV’s Part year of registration]* |
| 5. JV’s Party Legal Address in Country of Registration: *[insert JV’s Party legal address in country of registration]* |
| 6. JV’s Party Authorized Representative Information  Name: *[insert name of JV’s Party authorized representative]*  Address: *[insert address of JV’s Party authorized representative]*  Telephone/Fax numbers: *[insert telephone/fax numbers of JV’s Party authorized representative]*  Email Address: *[insert email address of JV’s Party authorized representative]* |
| 7. Attached are copies of original documents of:*[check the box(es) of the attached original documents]*   Articles of Incorporation or Registration of firm named in 2, above, in accordance with ITB Sub-Clauses 4.1 and 4.2. |

3. Bid Submission Form

*[The Bidder shall fill in this Form in accordance with the instructions indicated No alterations to its format shall be permitted and no substitutions shall be accepted.]*

Date: *[insert date (as day, month and year) of Bid Submission]*

PROCUREMENT No.: BID-090-GOO-ICB/15

To: SRTF Yönetim Hizmetleri A. Ş., Turkey, representing the Water Supply and Sanitation Directorate (WSSD) in Aleppo Governorate

We, the undersigned, declare that:

1. We have examined and have no reservations to the Bidding Documents;
2. We offer to supply in conformity with the Bidding Documents and in accordance with the Delivery Schedules specified in the Schedule of Requirements the following Goods:
3. The **total price per each independent lot in our Bid** (including any tax, if any) is as follows:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  |  | Incoterms 2010 | Currency  (………..) | Currency  (………..) | Currency  (………..) |
| Lot number 1 | | | | | |
| 1 | 4 Pieces - Generator 80 KVA - 64 KW | DAP Syrian border point export customs cleared and goods loaded on the truck of the recipient. The Border point to be used for the delivery of the goods is Bab al Hawa/Cilvegözü |  |  |  |
| 2 | 12 Pieces - Generator 100 KVA – 80 KW |
| 3 | 4 Pieces - Generator 125 KVA - 100 KW |
| 4 | 3 Pieces - Generator 150 KVA – 120 KW |
| 5 | 4 Pieces - Generator 200 KVA – 160 KW |
| 6 | 2 Pieces - Generator 250 KVA – 200 KW |
| Lot number 2 | | | | | |
| 7 | 2 Pieces - Distribution Transformers (Pole Mounted Oil Type), 50 kVA, 20 ± 5%/0.4 kV | DAP Syrian border point export customs cleared and goods loaded on the truck of the recipient. The Border point to be used for the delivery of the goods is Bab al Hawa/Cilvegözü |  |  |  |
| 8 | 14 Pieces - Distribution Transformers (Pole Mounted Oil Type), 100 kVA, 20 ± 5%/0.4 kV |
| 9 | 7 Pieces - Distribution Transformers (Pole Mounted Oil Type), 200 kVA, 20 ± 5%/0.4 kV |
| 10 | 1 Piece - Distribution Transformers (oil Type indoor ) 630 KVA, 20 ± 5%/0.4 kV |
| Lot number 3 | | | | | |
| 11 | 2 Pieces - Electrical Panel for power supply 50KVA | DAP Syrian border point export customs cleared and goods loaded on the truck of the recipient. The Border point to be used for the delivery of the goods is Bab al Hawa/Cilvegözü |  |  |  |
| 12 | 16 Pieces - Electrical Panel for power supply 100KVA |
| 13 | 7 Pieces - Electrical Panel for power supply 200KVA |
| 14 | 1 Piece - Electrical Panel for power supply 630KVA |
| Lot number 4 | | | | | |
| 15 | 50 Meters - Cable 3x4 mm2 NYY | DAP Syrian border point export customs cleared and goods loaded on the truck of the recipient. The Border point to be used for the delivery of the goods is Bab al Hawa/Cilvegözü |  |  |  |
| 16 | 250 Meters - Cable 3x10 mm2 NYY |
| 17 | 300 Meters - Cable 3x25 mm2 NYY |
| 18 | 10.000 Meters - Cable 3x1.5 mm2 NYY |
| 19 | 200 Meters - Cable 3x35+16 mm2 NYY |
| 20 | 1100 Meters - Cable 3x70+35 mm2 NYY |
| 21 | 500 Meters - Cable 3x95+50 mm2 NYY |
| 22 | 50 Meters - Cable 3x185+70 mm2 NYY |
| 23 | 200 Meters - Cable 3x16 mm2 NYMHFLY FLAT |
| 24 | 450 Meters - Cable 3x25 mm2 NYMHFLY FLAT |
| 25 | 2100 Meters - Cable 3x35 mm2 NYMHFLY FLAT |
| 26 | 3400 Meters - Cable 3x50 mm2 NYMHFLY FLAT |
| 27 | 400 Meters - Cable 3x70 mm2 NYMHFLY FLAT |
| 28 | 450 Meters - Cable 3x95 mm2 NYMHFLY FLAT |
| 29 | 7000 Meters - Cable 3x1.5 mm2 NYBY |
| 30 | 200 Meters - Cable 3x35 mm2 NYBY |
| 31 | 2000 Meters - Cable 3x50 mm2 NYBY |
| 32 | 700 Meters - Cable 3x120 mm2 NYBY |

excluding any discounts offered in item (d) below is:

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*[insert the total bid price in words and figures, indicating the various amounts and the respective currencies]*.

1. The discounts offered and the methodology for their application are:
2. Our bid shall be valid for the period of time specified in ITB Sub-Clause 20.1, from the date fixed for the bid submission deadline in accordance with ITB Sub-Clause 24.1, and it shall remain binding upon us and may be accepted at any time before the expiration of that period;
3. If our bid is accepted, we commit to obtain a performance security in accordance with ITB Clause 44 and GCC Clause 18 for the due performance of the Contract;
4. We, including any subcontractors or suppliers for any part of the contract, have nationality from eligible countries\_\_\_\_\_\_\_\_ *[insert the nationality of the Bidder, including that of all parties that comprise the Bidder, if the Bidder is a JV, and the nationality each subcontractor and supplier]*
5. We have no conflict of interest in accordance with ITB Sub-Clause 4.2;
6. We confirm that none of the other reasons for exclusion in accordance with ITB Sub-Clauses 4.2, 4.3 and 4.4 apply to our firm, its affiliates or subsidiaries—including any subcontractors or suppliers for any part of the contract ;
7. The following commissions, gratuities, or fees have been paid or are to be paid with respect to the bidding process or execution of the Contract: *[insert complete name of each Recipient, its full address, the reason for which each commission or gratuity was paid and the amount and currency of each such commission or gratuity]*

|  |  |  |  |
| --- | --- | --- | --- |
| Name of Recipient | Address | Reason | Amount |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

(If none has been paid or is to be paid, indicate “none.”)

(k) We understand that this bid, together with your written acceptance thereof included in your notification of award, shall constitute a binding contract between us, until a formal contract is prepared and executed.

(l) We understand that you are not bound to accept the lowest evaluated bid or any other bid that you may receive.

Signed:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ *[insert signature of person whose name and capacity are shown]*

In the capacity of \_\_\_\_\_\_\_*[insert legal capacity of person signing the Bid Submission Form]*

Name:\_\_\_\_\_\_\_\_\_\_\_\_ *[insert complete name of person signing the Bid Submission Form]*

Duly authorized to sign the bid for and on behalf of:\_\_\_\_\_ *[insert complete name of Bidder]*

Dated on \_\_\_\_\_\_\_\_\_\_\_\_ day of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_ *[insert date of signing]*

4. Price Schedule Forms

*[The Bidder shall fill in these Price Schedule Forms in accordance with the instructions indicated. The list of line items in column 1 of the* ***Price Schedules*** *shall coincide with the List of Goods and Related Services specified by the Purchaser in the Schedule of Requirements.]*

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Price Schedule: Goods** | | | | | | | |
| Currencies in accordance with ITB Sub-Clause 15 | | | | | | Date:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Procurement No: BID-090-GOO-ICB/15  Page N° \_\_\_\_\_\_ of \_\_\_\_\_\_ | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Line Item  N° | Description of Goods | Country of Origin | Delivery Date as defined by Incoterms – please propose a number of days consistent with the instructions provided in the schedule of requirements | Quantity | Physical unit | Unit price  DAP border point in accordance with ITB and BDS 14.6 (a) | DAP border point price per line item  (Col. 6x7) |
| Lot number 1 (Generators) | | | | | | | |
| 1 | Generator 80 KVA - 64 KW |  |  | 4 | Piece |  |  |
| 1 | Generator 100 KVA – 80 KW |  |  | 12 | Piece |  |  |
| 3 | Generator 125 KVA - 100 KW |  |  | 4 | Piece |  |  |
| 4 | Generator 150 KVA – 120 KW |  |  | 3 | Piece |  |  |
| 5 | Generator 200 KVA – 160 KW |  |  | 4 | Piece |  |  |
| 6 | Generator 250 KVA – 200 KW |  |  | 2 | Piece |  |  |
| **Total Price for LOT No.1** | | | | | | |  |
| Lot number 2 (Distribution transformers) | | | | | | | |
| 7 | Distribution Transformers (Pole Mounted Oil Type), 50 kVA, 20 ± 5%/0.4 kV |  |  | 2 | Piece |  |  |
| 8 | Distribution Transformers (Pole Mounted Oil Type), 100 kVA, 20 ± 5%/0.4 kV |  |  | 14 | Piece |  |  |
| 9 | Distribution Transformers (Pole Mounted Oil Type), 200 kVA, 20 ± 5%/0.4 kV |  |  | 7 | Piece |  |  |
| 10 | Distribution Transformers (oil Type indoor ) 630 KVA, 20 ± 5%/0.4 kV |  |  | 1 | Piece |  |  |
| **Total Price for LOT No.2** | | | | | | |  |
| Lot number 3 (Electrical Panels) | | | | | | | |
| 11 | Electrical Panel for power supply 50KVA |  |  | 2 | Piece |  |  |
| 12 | Electrical Panel for power supply 100KVA |  |  | 16 | Piece |  |  |
| 13 | Electrical Panel for power supply 200KVA |  |  | 7 | Piece |  |  |
| 14 | Electrical Panel for power supply 630KVA |  |  | 1 | Piece |  |  |
| **Total Price for LOT No.3** | | | | | | |  |
| Lot number 4 (Cables) | | | | | | | |
| 15 | Cable 3x4 mm2 NYY |  |  | 50 | Meter |  |  |
| 16 | Cable 3x10 mm2 NYY |  |  | 250 | Meter |  |  |
| 17 | Cable 3x25 mm2 NYY |  |  | 300 | Meter |  |  |
| 18 | Cable 3x1.5 mm2 NYY |  |  | 10,000 | Meter |  |  |
| 19 | Cable 3x35+16 mm2 NYY |  |  | 200 | Meter |  |  |
| 20 | Cable 3x70+35 mm2 NYY |  |  | 1,100 | Meter |  |  |
| 21 | Cable 3x95+50 mm2 NYY |  |  | 500 | Meter |  |  |
| 22 | Cable 3x185+70 mm2 NYY |  |  | 50 | Meter |  |  |
| 23 | Cable 3x16 mm2 NYMHFLY FLAT |  |  | 200 | Meter |  |  |
| 24 | Cable 3x25 mm2 NYMHFLY FLAT |  |  | 450 | Meter |  |  |
| 25 | Cable 3x35 mm2 NYMHFLY FLAT |  |  | 2,100 | Meter |  |  |
| 26 | Cable 3x50 mm2 NYMHFLY FLAT |  |  | 3,400 | Meter |  |  |
| 27 | Cable 3x70 mm2 NYMHFLY FLAT |  |  | 400 | Meter |  |  |
| 28 | Cable 3x95 mm2 NYMHFLY FLAT |  |  | 450 | Meter |  |  |
| 29 | Cable 3x1.5 mm2 NYBY |  |  | 7,000 | Meter |  |  |
| 30 | Cable 3x35 mm2 NYBY |  |  | 200 | Meter |  |  |
| 31 | Cable 3x50 mm2 NYBY |  |  | 2,000 | Meter |  |  |
| 32 | Cable 3x120 mm2 NYBY |  |  | 700 | Meter |  |  |
| **Total Price for Lot No. 4** | | | | | | |  |

5. Bid Security (Bank Guarantee)

*[The Bank shall fill in this Bank Guarantee Form in accordance with the instructions indicated.]*

*\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  
[Bank’s Name, and Address of Issuing Branch or Office]*

**Beneficiary:** Water Supply and Sanitation Directorate (WSSD) in Aleppo Governorate represented by SRTF Yönetim Hizmetleri A. Ş., Budak Mah.Gazi Muhtar Pasa Blv. 10031 Sk. YASEM Is Mrk. No 42/804 – Sehitkamil/Gaziantep, Postal Code : 27090, Turkey

**Date:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**BID GUARANTEE No.:**

We have been informed that *[name of the Bidder]* (hereinafter called "the Bidder") has submitted to you its bid dated (hereinafter called "the Bid") for the execution of *[bid name]* under Bids No. BID-090-GOO-ICB/15 (“the BID”).

Furthermore, we understand that, according to your conditions, bids must be supported by a bid guarantee.

At the request of the Bidder, we *[name of Bank]* hereby irrevocably undertake to pay to you any sum or sums not exceeding in total an amount of *[amount in figures]* (*[amount in words]*) upon receipt by us of your first demand in writing accompanied by a written statement stating that the Bidder is in breach of its obligation(s) under the bid conditions, because the Bidder:

(a) has withdrawn its Bid during the period of bid validity specified by the Bidder in the Form of Bid; or

(b) having been notified of the acceptance of its Bid by the Purchaser during the period of bid validity, (i) fails or refuses to execute the Contract Form; or (ii) fails or refuses to furnish the performance security, if required, in accordance with the Instructions to Bidders.

This guarantee will expire: (a) if the Bidder is the successful bidder, upon our receipt of copies of the contract signed by the Bidder and the performance security issued to you upon the instruction of the Bidder; or (b) if the Bidder is not the successful bidder, upon the earlier of (i) our receipt of a copy of your notification to the Bidder of the name of the successful bidder; or (ii) twenty-eight days after the expiration of the Bidder’s Bid.

Consequently, any demand for payment under this guarantee must be received by us at the office on or before that date.

This guarantee is subject to the Uniform Rules for Demand Guarantees, ICC Publication No. 758.

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

*[signature(s)]*

6. Bid-Securing Declaration

*[The Bidder shall fill in this Form in accordance with the instructions indicated.]*

Date: *[date (as day, month and year)]*

Bid No.: BID-090-GOO-ICB/15

To: Water Supply and Sanitation Directorate (WSSD) in Aleppo Governorate represented by SRTF Yönetim Hizmetleri A. Ş., Budak Mah.Gazi Muhtar Pasa Blv. 10031 Sk. YASEM Is Mrk. No 42/804 – Sehitkamil/Gaziantep, Postal Code : 27090, Turkey

We, the undersigned, declare that:

We understand that, according to your conditions, bids must be supported by a bid security.

We understand that, according to your conditions, Syrian bidders who are not in the condition to provide such security in the form of a bank guarantee are allowed to submit a bid securing declaration.

We confirm that we are in the above mentioned situation, i.e. we are a Syrian bidder and, for reasons not related to our firm, we are not in the condition to provide a bid security in the form of a bank guarantee.

We accept that we will automatically be suspended from being eligible for bidding in any contract financed by SRTF for the period of time of *[number of years as per ITB 21.7]* starting on *[date of withdrawal of our bid/date of notification of acceptance of our bid],* if we are in breach of our obligation(s) under the bid conditions, because we:

(a) have withdrawn our Bid during the period of bid validity specified in the Form of Bid; or

(b) having been notified of the acceptance of our Bid by the Purchaser during the period of bid validity, (i) fail or refuse to execute the Contract; or (ii) fail or refuse to furnish the Performance Security, if required, in accordance with the ITB.

We understand this Bid Securing Declaration shall expire if we are not the successful Bidder, upon the earlier of (i) our receipt of your notification to us of the name of the successful Bidder; or (ii) sixty days after the expiration of our Bid.

Signed: *[signature of person whose name and capacity are shown]* In the capacity of *[legal capacity of person signing the Bid Securing Declaration]*

Name: *[complete name of person signing the Bid Securing Declaration]*

Duly authorized to sign the bid for and on behalf of: *[complete name of Bidder]*

Dated on \_\_\_\_\_\_\_\_\_\_\_\_ day of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_ *[date of signing]*Corporate Seal (where appropriate)

*[Note: In case of a Joint Venture, the Bid Securing Declaration must be in the name of all partners to the Joint Venture that submits the bid.]*

7. Manufacturer’s Authorization

*[If deemed advisable by the Purchaser, the Bidder shall require the Manufacturer to fill in this Form in accordance with the instructions indicated. This* *letter of authorization should be on the letterhead of the Manufacturer and should be signed by a person with the proper authority to sign documents that are binding on the Manufacturer. The Bidder shall include it in its bid, if so indicated in the* ***BDS. However it is not necessary to include an original, a simple copy is enough****.]*

Date: *[insert date (as day, month and year) of Bid Submission]*

DIR No.: *[insert number of bidding process]*

Alternative No.: *[insert identification No if this is a Bid for an**alternative]*

To: Water Supply and Sanitation Directorate (WSSD) in Aleppo Governorate represented by SRTF Yönetim Hizmetleri A. Ş., Gaziantep, Turkey

WHEREAS

We *[insert complete name of Manufacturer],* who are official manufacturers of*[insert type of goods manufactured],* having factories at [insert full address of Manufacturer’s factories], do hereby authorize *[insert complete name of Bidder]* to submit a bid the purpose of which is to provide the following Goods, manufactured by us *[insert name and or brief description of the Goods],* and to subsequently negotiate and sign the Contract.

We hereby extend our full guarantee and warranty in accordance with Clause 28 of the General Conditions of Contract, with respect to the Goods offered by the above firm.

Signed: *[insert signature(s) of authorized representative(s) of the Manufacturer]*

Name: *[insert complete name(s) of authorized representative(s) of the Manufacturer]*

Title: *[insert title]*

Place: *[insert place of signature*

Date: *[insert date of signing]*

Section V: Eligible Countries (EC)

**Eligibility for the Provision of Goods, Works and Services in SRTF-Financed Procurement**

1. In accordance with applicable SRTF Procurement Guidelines SRTF permits firms and individuals from all countries to offer goods, works and services for SRTF-financed projects. As an exception, firms of a Country or goods manufactured in a Country may be excluded if:

* + - 1. participation of a bidder (or any of its personnel) is ruled out by sanctions issued by the UN Security Council, the EU, the US or any other Donor government; or
      2. any import of goods from that Country or any payments to persons or entities in that Country is ruled out by sanctions issued by the UN Security Council, the EU, the US or any other Donor government; or
      3. the bidder is legally barred from the procurement process in its own or any Donor country or the country of the contracting agency on the grounds of previous violations of regulation on fraud and corruption; if the bidder is legally barred from the procurement process in Syria, the exclusion shall only be considered, if it is officially recognized by the National Coalition

2. For the information of bidders with reference to 1 (i) and (ii) above, at the present time SRTF Donors are the following ones: Federal Republic of Germany, the United Arab Emirates, the United States of America, the National Coalition of Syrian Revolutionary and Opposition Forces (SOC), Denmark, Sweden, Finland, Japan, the United Kingdom, Kuwait, France, Italy, Turkey as the host Country and the German Development Bank KfW as the Trustee.

# 

PART 2 – Supply Requirements

Section VI: Schedule of Requirements

**Table of Contents**

[1. List of Goods and Delivery Schedule 56](#_Toc432414145)

[2. List of Services and Completion Schedule 59](#_Toc432414146)

[3. Technical Specifications and Compatibility Table 60](#_Toc432414147)

[4. Drawings 186](#_Toc432414148)

[5. Inspections and Tests 223](#_Toc432414149)

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 1. List of Goods and Delivery Schedule | | | | | | |  |
| **Line Item**  **N°** | **Description of Goods** | **Quantity** | **Physical unit** | **Destination as specified in BDS** | **Delivery (as per Incoterms) Date** | | |
| **Earliest Delivery Date (**Number of days following the date of effectiveness the Contract) | **Latest Delivery Date**  (Number of days following the date of effectiveness the Contract | **Bidder’s offered Delivery date [*to be provided by the bidder*]** |
| **Lot number 1** | | | | | | | |
| 1 | Generator 80 KVA - 64 KW | 4 | Piece | Border point | 15 | 90 |  |
| 2 | Generator 100 KVA – 80 KW | 12 | Piece | Border point | 15 | 90 |  |
| 3 | Generator 125 KVA - 100 KW | 4 | Piece | Border point | 15 | 90 |  |
| 4 | Generator 150 KVA – 120 KW | 3 | Piece | Border point | 15 | 90 |  |
| 5 | Generator 200 KVA – 160 KW | 4 | Piece | Border point | 15 | 90 |  |
| 6 | Generator 250 KVA – 200 KW | 2 | Piece | Border point | 15 | 90 |  |
| **Lot number 2** | | | | | | | |
| 7 | Distribution Transformers (Pole Mounted Oil Type), 50 kVA, 20 ± 5%/0.4 kV | 2 | Piece | Border point | 15 | 90 |  |
| 8 | Distribution Transformers (Pole Mounted Oil Type), 100 kVA, 20 ± 5%/0.4 kV | 14 | Piece | Border point | 15 | 90 |  |
| 9 | Distribution Transformers (Pole Mounted Oil Type), 200 kVA, 20 ± 5%/0.4 kV | 7 | Piece | Border point | 15 | 90 |  |
| 10 | Distribution Transformers (oil Type indoor ) 630 KVA, 20 ± 5%/0.4 kV | 1 | Piece | Border point | 15 | 90 |  |
| **Lot number 3** | | | | | | | |
| 11 | Electrical Panel for power supply 50KVA | 2 | Piece | Border point | 15 | 90 |  |
| 12 | Electrical Panel for power supply 100KVA | 16 | Piece | Border point | 15 | 90 |  |
| 13 | Electrical Panel for power supply 200KVA | 7 | Piece | Border point | 15 | 90 |  |
| 14 | Electrical Panel for power supply 630KVA | 1 | Piece | Border point | 15 | 90 |  |
| **Lot number 4** | | | | | | | |
| 15 | Cable 3x4 mm2 NYY | 50 | Meter | Border point | 15 | 90 |  |
| 16 | Cable 3x10 mm2 NYY | 250 | Meter | Border point | 15 | 90 |  |
| 17 | Cable 3x25 mm2 NYY | 300 | Meter | Border point | 15 | 90 |  |
| 18 | Cable 3x1.5 mm2 NYY | 10,000 | Meter | Border point | 15 | 90 |  |
| 19 | Cable 3x35+16 mm2 NYY | 200 | Meter | Border point | 15 | 90 |  |
| 20 | Cable 3x70+35 mm2 NYY | 1,100 | Meter | Border point | 15 | 90 |  |
| 21 | Cable 3x95+50 mm2 NYY | 500 | Meter | Border point | 15 | 90 |  |
| 22 | Cable 3x185+70 mm2 NYY | 50 | Meter | Border point | 15 | 90 |  |
| 23 | Cable 3x16 mm2 NYMHFLY FLAT | 200 | Meter | Border point | 15 | 90 |  |
| 24 | Cable 3x25 mm2 NYMHFLY FLAT | 450 | Meter | Border point | 15 | 90 |  |
| 25 | Cable 3x35 mm2 NYMHFLY FLAT | 2,100 | Meter | Border point | 15 | 90 |  |
| 26 | Cable 3x50 mm2 NYMHFLY FLAT | 3,400 | Meter | Border point | 15 | 90 |  |
| 27 | Cable 3x70 mm2 NYMHFLY FLAT | 400 | Meter | Border point | 15 | 90 |  |
| 28 | Cable 3x95 mm2 NYMHFLY FLAT | 450 | Meter | Border point | 15 | 90 |  |
| 29 | Cable 3x1.5 mm2 NYBY | 7,000 | Meter | Border point | 15 | 90 |  |
| 30 | Cable 3x35 mm2 NYBY | 200 | Meter | Border point | 15 | 90 |  |
| 31 | Cable 3x50 mm2 NYBY | 2,000 | Meter | Border point | 15 | 90 |  |
| 32 | Cable 3x120 mm2 NYBY | 700 | Meter | Border point | 15 | 90 |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 2. List of Services and Completion Schedule  **Not Applicable** | | | | | |
| **Service** | **Description of Service** | **Quantity1** | **Physical Unit** | **Place where Services shall be performed** | **Final Completion Date(s) of Services** |
|
| *[****insert Service No****]* | *[****insert description of Related Services****]* | *[****insert quantity of items to be supplied****]* | *[****insert physical unit for the items****]* | *[****insert name of the Place****]* | *[****insert required Completion Date(s)****]* |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
| 1. If applicable | | | | | |

3. Technical Specifications and Compatibility Table

|  |
| --- |
| **Bid name: Procurement of Generators, Transformers, Electrical Panels and Cables** |
| **Bid reference: BID-090-GOO-ICB/15** |

**Lot 1 - Generators**

|  |  |  |  |
| --- | --- | --- | --- |
| TECHNICAL SPECIFICATION AND COMPATIBILITY TABLE | | | |
| 1 | 2 | 3 | 4 |
| No. | **ITEM NAME & DESCRIPTION**  **Diesel Generator (DG)**  Prime power 80 KVA – 64 KW with transfer panel | BIDDER’S OFFER | Ref. page no of Supporting Documents |
|  | **Item Number: 1** |  |  |
|  | Item description: This specification sets out the technical requirements for design, manufacturing, testing at works and supply of 80 KVA Prime power rate Automatic Diesel engine driven Generator (DG).  The Diesel Generator design shall comply with the requirements of the following IEC standards:   * IEC 60204 Electrical Equipment of Industrial Machines , * IEC 60034:Rotating Electrical Machines and IEC 60072-1, IEC 60072-2 * IEC 60085 Thermal evaluation and classification of electrical insulation.   and shall be suitable for use at the specified ambient conditions.  It is not the intent to specify completely herein all the details of the design and construction of the equipment. However, the equipment shall conform in all respects to high standards of engineering, design and workmanship and shall be capable of performing in continuous commercial operation up to the Bidder’s guarantee, in a manner acceptable to the purchaser, who will interpret the meanings of the drawings and the specification and shall have the power to reject any work or material which, in his judgment is not in accordance therewith. The offered equipment shall be complete with all components necessary for their effective and trouble free operation. Such, components be deemed to be within the scope of Bidder’s supply interceptive of whether those are specifically brought out in this specification and / or the commercial order or not. | Manufacturer:  Brand:  Type/Model:  Catalogue reference:  Country of Origin: |  |
|  | **APPLICATION** |  |  |
|  | The DG will be used to supply power to different types of residential and industrial loadswhen there is no power available from Utility |  |  |
| **A** | **DESCRIPTION OF BASIC COMPONENTS WITH TECHNICAL SPECIFICATIONS** |  |  |
|  | **General data** |  |  |
| 1 | Type : Diesel Generator (DG)  Rated Prime Power :  Min. 80 KVA and 64 KW with transfer panel |  |  |
| 2 | **Technical Requirements**  The diesel generators shall comprise of the following main equipment:  - Diesel engine with radiator type cooler  - Ac generator (alternator) with automatic  voltage regulator (AVR)  - Set mounted Main Breaker (MCCB)  - Set mounted control panel  - Starter control battery and engine  driven charging system  - Loose items such as flexible  exhaust pipe with gaskets and  flanges and silencer  - Common base frame  - Base fuel tank with level indicator  (gauge)  - Remote annunciator panel.  All exposed moving parts such as fans, couplings, drive belts, etc. shall be guarded in accordance with relevant standards. |  |  |
| 2 | **Kind of installation**: indoor, mounted on a common base frame according IEC. |  |  |
| 3 | **Diesel Engine** |  |  |
| 3.1 | The engine shall be:  - water-cooled,  - single block design  - four stroke cycle compression  - 4 cylinder / in line  - 1500 RPM , 50 Hz |  |  |
| 3.2 | The diesel engine shall be a completely self-conditioned unit comprising but not limited to the following:  Air cleaner, Lubricating oil filter,  Fuel filter, 24 volt starter motor,  Contactors - manually operable,  24 volt charging alternator,  Heat exchanger (radiator),Governor  Torsional vibration damper,  Alternator belt guard, Flywheel housing, Exhaust manifold(s), Lubricating oil cooler, High water temperature switch, Low oil pressure switch, Over speed switch, Jacket water heater, Jacket water centrifugal pump. |  |  |
| 3.3 | Instrument panel incorporating:  Voltmeter, Ammeter, Tachometer  Hours Run Meter, Water temperature gauge, Lubricating oil pressure gauge  Junction box with enclosed terminal strip |  |  |
| 3.4 | Governing:Mechanical/ hydro mechanical governor with 3% drop shall be provided |  |  |
| 3.5 | Cooling System An engine-mounted, heavy duty, closed circuit, tropicalised folded core radiator with blower type fan shall be sized to maintain safe operation at 50 deg. C maximum ambient temperature. The flexible connecting section between radiator and fixed exhaust louvres/intake louvres shall be sized and located to provide sufficient intake air for engine combustion and to provide required air flow through the radiator. |  |  |
| 3.6 | Air Intake System The air-intake system shall consist of the following:  - Pre cleaner  - Dry air cleaner with changeable filter  element.  - Service indicator to optimize changing of filter |  |  |
| 3.7 | Exhaust System The exhaust silencer shall be of the residential type including stainless steel flexible exhaust  pipe and fitting properly sized and installed according to IEC  Silencer shall be mounted so that its weight is not supported by the engine.  Exhaust pipe shall be sized so that it is sufficient to ensure that exhaust back pressure does not exceed the maximum limit as specified by IEC.  Exhaust pipe inside rooms/enclosures shall be lagged with heat resistant material and shall  be provided with aluminum cladding so as to have a surface temperature not exceeding  60°C. |  |  |
| 3.8 | Fuel System The fuel injection pump should be calibration free to ensure minimum down time.  Skid mounted eight (8) hours day tank with suitable drainage arrangement shall be provided.  Inlet and outlet fuel connections to engine should be through suitable flexible lines.  An engine mounted fuel filter, fuel pressure gauge and engine fuel priming pump shall be  provided. |  |  |
| 3.9 | Lubrication System The lubrication shall be forced feed equipped with a gear driven lube oil pump. The filters should be easily replaceable |  |  |
| 3.10 | Starting System A 24V D.C. electric starting system with positive engagement drive shall be furnished. Unit should be able to take up load in maximum 15 sec. |  |  |
| 3.11 | Batteries and Battery Charger Heavy duty lead-acid storage batteries for using in conjunction with the electric starting system shall be provided. Batteries shall be rated for minimum three start attempts. A battery rack and necessary cable and clamps shall be provided.  **The charger** shall employ transistor controlled magnetic amplifier circuits to provide continuous taper charging and shall maintain rated output voltage within +/- 1% from no load to full load with boost/float control. It should be rated at minimum 8A and be short-circuit proof to withstand the starting inrush of current. |  |  |
| 3.12 | Mounting System To achieve simplicity in foundation work, the set shall preferably be mounted on welded steel common bedplate with vibration isolators.  Flexible connections shall be provided to all ducts and pipes to minimize conduction of noise. |  |  |
| 4. | **Alternating Current (A.C.) Generators** (Alternators) |  |  |
| 4.1 | General Generators shall be brushless, single bearing salient pole, revolving field self regulating alternators of fabricated steel construction throughout, and shall comply fully with IEC 60034. They shall have a dynamically balanced rotating field, salient pole construction with heavy damper windings. The machine shall have an exciter and liberally rated silicon diodes assembly with a self contained excitation system with automatic voltage regulator (AVR) maximum  + 1% . It shall be screen protected and drip proof with a large terminal box suitable for the outgoing cabling.  The generators shall be star connected.  The generators shall be capable of maintaining their continuous maximum rated output when operating within ±5% rated voltage and at rated power factor.  All windings shall be tropicalised and suitably impregnated to withstand the site ambient conditions. |  |  |
| 4.2 | **Alternator**   * 3 phase system 230/400 volt * Rated prime power Min 80 KVA * Power factor 0.8 * 4 poles * Insulation Class H * Degree of protection IP 23 * Star connection * THD <= 2 % * 50 Hz * Efficiency > 88% |  |  |
| 4.3 | Stator The stator core shall consist of high permeability, low loss steel stamping, tightly clamped and securely located within the machine casing.  The windings shall consist of electrolytic copper conductors insulated throughout with class 'H' materials.  Both ends of each stator windings shall be brought out to terminal positions on the stator casing, the phase and terminal box being arranged for 3-phase and neutral connection. |  |  |
| 4.4 | Rotor The rotor shaft and hub shall be of forged steel preferably in one piece. The rotor poles shall be constructed of steel laminations, keyed and securely fixed to the rotor hub and fitted with interconnected damper windings to absorb the cyclic irregularity of engine.  The field winding shall consist of electrolytic copper conductors insulated throughout with class 'H' materials. Rotor should be precision wet layer wound to ensure complete encapsulation of rotor winding resulting in excellent environmental protection and protection against centrifugal forces. Rotor should withstand 124% over speed. |  |  |
| 4.5 | Excitation System The main exciter output shall be fed to their main rotor windings through a 3 phase, full wave bridge rectifier. The diode bridge shall be protected against surge and voltage transients caused, for example, by short-circuit or out of phase paralleling by a surge arrestor. The automatic voltage regulator shall have following minimum features:   1. Three phase sensing for optimum voltage control with unbalanced three phase loads. 2. Volts-per-hertz regulation for optimum block load voltage and frequency recovery. 3. Steady state voltage accuracy better than 0.5 % for precise control and quick recovery. 4. Voltage regulation, 1% from no load to full load (maximum). 5. External gain adjustment for constant voltage output across the operating range. 6. No moving parts should be there. All solid-state design for better reliability. 7. Voltage adjustment range - 20% to 10%. 8. Built in under voltage and under frequency protection for voltage regulator and generator. 9. Paralleling capability. 10. Telephone Interference Factor (TIF) less than 50. 11. EMI/RFI suppressions to commercial standards. |  |  |
| **5** | Self-Mounted Control Panel The diesel generator set mounted control panel shall be of a highly reliable design with protection against short circuit, reverse battery polarity and overvoltage transient surges. Meters installed should maintain their accuracy of 0.5 %. for voltmeters and ammeters from - 40 deg. C to 70 deg. C.  The generator shall have an electronic modular control panel with solid-state microprocessor based modules for engine control, AC metering and adequate environment protection.  The panel should be equipped with self-diagnostic capability to help trouble shooting for ease of maintenance.  Panel should have one engine control module to display engine operating information, system checking diagnostics, and fault shutdown using back lighted liquid crystal display (LCD) and light emitting diodes (LEDs). LCD display shall have sequential display of operating hours, engine rpm, battery volts, oil pressure and jacket water temperature. Any of these values shall be displayed by means of a selector switch. |  |  |
|  |  |  |  |
| 6 | **Dimension:** |  |  |
| 6.1 | Length: Max 2400 mm |  |  |
| 6.2 | Width: Max 11500 mm |  |  |
| 6.3 | Height: Max. 1700 mm |  |  |
| 6.4 | Weight: Max. 1500 Kg |  |  |
|  |  |  |  |
| **B** | **ACCESSORIES & CONSUMABLES** |  |  |
| 1 | Fast moving , oil filters , air filters , Fuel filters, and one V belt (2 pieces each) |  |  |
| **C** | **STANDARD REQUIREMENTS AND INSTRUCTIONS** |  |  |
| 1 | The item must be compliant to IEC 60204 , IEC 60034-1, IEC 60072-1, IEC 60072-2 ,  IEC 60085 standard.  Each unit must be tested according to the a.m. standards by the manufacturer laboratory or other laboratory. The test certificates will have to be provided in the contracting phase.  Primary and Secondary Insulation level must be according to the a.m. standard.  Permissible overload and duration in minutes (must be according to the a.m. standard. |  |  |
| 2 | Certification as per ISO 9001 and 14001 |  |  |
| 3 | The item offered shall be designed to operate normally under the conditions of the Implementing Entities country (Syria), i.e.: - Altitude above sea level: 1000 m (max.)  - Max. ambient temperature: 50 oC - Min. ambient temperature: - 10 oC  - Average annual temperature: 35 oC - Maximal temperature variation in one day : 20 oC  - Average maximum relative humidity: 80% at 30 degree C  - (Relative humidity in some site of Syria of up to 100% is possible) |  |  |
| 6 | The equipment supplied must be new with proper serial number as proof |  |  |
| 7 | A user's operations manual and installation manual in English and in Arabic must be supplied. |  |  |
| **D** | **OPTIONS** |  |  |
| 1 | NA |  |  |
| **E** | **NOTE** |  |  |
| 1 | Bidders may propose any product/system, which is equivalent or better than the requirements specified above. |  |  |
| 2 | Bidder shall furnish a clause-by-clause commentary on the requirements above in column 3 of this TSF. Bidder who comment with texts such as "Yes", "Complied", "Refer to catalogue", copying texts directly from the technical specifications form, leave any parameter line blank and/ or submit any text or content of this nature may be considered as NON-RESPONSIVE. |  |  |
| **F** | **Documentation** |  |  |
| 1 | Bidder should provide the following documents as relevant for bid submission and refer to these in column 4 of this TSF. |  |  |
| 2 | Brochures or catalogues |  |  |
| 3 | Technical data sheet |  |  |
| 4 | Copy of Test certificates as per IEC 60034-1 and other standards for Electrical machines carried out by the manufacturer in the last 12 months from the deadline for the submission of the bid. |  |  |
| **G** | Training on equipment supplied |  |  |
| 1 | Training must be provided in Arabic at your site for 3 technical staff for 5 day. This is an activity in common for all the DGs. If Your firm cannot provide in Arabic, interpretation will have to be provided. |  |  |
| 2 | The training must include the following elements and information: |  |  |
| 3 | Basic functioning and installation of the different Diesel Generators; |  |  |
| 4 | Equipment orientation / functions; |  |  |
| 5 | Simple aspects/steps in troubleshooting of errors; |  |  |
| 6 | Basic steps in the maintenance of the equipment; |  |  |
| 7 | Safety aspects of the equipment; |  |  |
| 8 | Equipment Operation Procedures (EOP) |  |  |

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| --- | --- | --- | --- |
| TECHNICAL SPECIFICATION AND COMPATIBILITY TABLE | | | |
| 1 | 2 | 3 | 4 |
| No. | **ITEM NAME & DESCRIPTION**  **Diesel Generator (DG)**  Prime power 100 KVA – 80 KW with transfer panel | BIDDER’S OFFER | Ref. page no of Supporting Documents |
|  | **Item Number: 2** |  |  |
|  | Item description: This specification sets out the technical requirements for design, manufacturing, testing at works and supply of 100 KVA Prime power rate Automatic Diesel engine driven Generator (DG).  The Diesel Generator design shall comply with the requirements of the following IEC standards:   * IEC 60204 Electrical Equipment of Industrial Machines , * IEC 60034:Rotating Electrical Machines and IEC 60072-1, IEC 60072-2 * IEC 60085 Thermal evaluation and classification of electrical insulation.   and shall be suitable for use at the specified ambient conditions.  It is not the intent to specify completely herein all the details of the design and construction of the equipment. However, the equipment shall conform in all respects to high standards of engineering, design and workmanship and shall be capable of performing in continuous commercial operation up to the Bidder’s guarantee, in a manner acceptable to the purchaser, who will interpret the meanings of the drawings and the specification and shall have the power to reject any work or material which, in his judgment is not in accordance therewith. The offered equipment shall be complete with all components necessary for their effective and trouble free operation. Such, components be deemed to be within the scope of Bidder’s supply interceptive of whether those are specifically brought out in this specification and / or the commercial order or not. | Manufacturer:  Brand:  Type/Model:  Catalogue reference:  Country of Origin: |  |
|  | **APPLICATION** |  |  |
|  | The DG will be used to supply power to different types of residential and industrial loadswhen there is no power available from Utility |  |  |
| **A** | **DESCRIPTION OF BASIC COMPONENTS WITH TECHNICAL SPECIFICATIONS** |  |  |
|  |  |  |  |
|  | **General data** |  |  |
| 1 | Type : Diesel Generator (DG)  Rated Prime Power :  Min. 100 KVA and 80 KW with transfer panel |  |  |
| 2 | **Technical Requirements**  The diesel generators shall comprise of the following main equipment:  - Diesel engine with radiator type cooler  - Ac generator (alternator) with automatic  voltage regulator (AVR)  - Set mounted Main Breaker (MCCB)  - Set mounted control panel  - Starter control battery and engine  driven charging system  - Loose items such as flexible  exhaust pipe with gaskets and  flanges and silencer  - Common base frame  - Base fuel tank with level indicator  (gauge)  - Remote annunciator panel.  All exposed moving parts such as fans, couplings, drive belts, etc. shall be guarded in accordance with relevant standards. |  |  |
| 2 | **Kind of installation**: indoor, mounted on a common base frame according IEC. |  |  |
| 3 | **Diesel Engine** |  |  |
| 3.1 | The engine shall be:  - water-cooled,  - single block design  - four stroke cycle compression  - 4 cylinder / in line  - 1500 RPM , 50 Hz |  |  |
| 3.2 | The diesel engine shall be a completely self-conditioned unit comprising but not limited to the following:  Air cleaner, Lubricating oil filter,  Fuel filter, 24 volt starter motor,  Contactors - manually operable,  24 volt charging alternator,  Heat exchanger (radiator),Governor  Torsional vibration damper,  Alternator belt guard, Flywheel housing, Exhaust manifold(s), Lubricating oil cooler, High water temperature switch, Low oil pressure switch, Over speed switch, Jacket water heater, Jacket water centrifugal pump. |  |  |
| 3.3 | Instrument panel incorporating:  Voltmeter, Ammeter, Tachometer  Hours Run Meter, Water temperature gauge, Lubricating oil pressure gauge  Junction box with enclosed terminal strip |  |  |
| 3.4 | Governing:Mechanical/ hydro mechanical governor with 3% drop shall be provided |  |  |
| 3.5 | Cooling System An engine-mounted, heavy duty, closed circuit, tropicalised folded core radiator with blower type fan shall be sized to maintain safe operation at 50 deg. C maximum ambient temperature. The flexible connecting section between radiator and fixed exhaust louvres/intake louvres shall be sized and located to provide sufficient intake air for engine combustion and to provide required air flow through the radiator. |  |  |
| 3.6 | Air Intake System The air-intake system shall consist of the following:  - Pre cleaner  - Dry air cleaner with changeable filter  element.  - Service indicator to optimize changing of filter |  |  |
| 3.7 | Exhaust System The exhaust silencer shall be of the residential type including stainless steel flexible exhaust  pipe and fitting properly sized and installed according to IEC  Silencer shall be mounted so that its weight is not supported by the engine.  Exhaust pipe shall be sized so that it is sufficient to ensure that exhaust back pressure does not exceed the maximum limit as specified by IEC.  Exhaust pipe inside rooms/enclosures shall be lagged with heat resistant material and shall  be provided with aluminum cladding so as to have a surface temperature not exceeding  60°C. |  |  |
| 3.8 | Fuel System The fuel injection pump should be calibration free to ensure minimum down time.  Skid mounted eight (8) hours day tank with suitable drainage arrangement shall be provided.  Inlet and outlet fuel connections to engine should be through suitable flexible lines.  An engine mounted fuel filter, fuel pressure gauge and engine fuel priming pump shall be  provided. |  |  |
| 3.9 | Lubrication System The lubrication shall be forced feed equipped with a gear driven lube oil pump. The filters should be easily replaceable |  |  |
| 3.10 | Starting System A 24V D.C. electric starting system with positive engagement drive shall be furnished. Unit should be able to take up load in maximum 15 sec. |  |  |
| 3.11 | Batteries and Battery Charger Heavy duty lead-acid storage batteries for using in conjunction with the electric starting system shall be provided. Batteries shall be rated for minimum three start attempts. A battery rack and necessary cable and clamps shall be provided.  **The charger** shall employ transistor controlled magnetic amplifier circuits to provide continuous taper charging and shall maintain rated output voltage within +/- 1% from no load to full load with boost/float control. It should be rated at minimum 8A and be short-circuit proof to withstand the starting inrush of current. |  |  |
| 3.12 | Mounting System To achieve simplicity in foundation work, the set shall preferably be mounted on welded steel common bedplate with vibration isolators.  Flexible connections shall be provided to all ducts and pipes to minimize conduction of noise. |  |  |
| 4. | **Alternating Current (A.C.) Generators** (Alternators) |  |  |
| 4.1 | General Generators shall be brushless, single bearing salient pole, revolving field self regulating alternators of fabricated steel construction throughout, and shall comply fully with IEC 60034. They shall have a dynamically balanced rotating field, salient pole construction with heavy damper windings. The machine shall have an exciter and liberally rated silicon diodes assembly with a self contained excitation system with automatic voltage regulator (AVR) maximum  + 1% . It shall be screen protected and drip proof with a large terminal box suitable for the outgoing cabling.  The generators shall be star connected.  The generators shall be capable of maintaining their continuous maximum rated output when operating within ±5% rated voltage and at rated power factor.  All windings shall be tropicalised and suitably impregnated to withstand the site ambient conditions. |  |  |
| 4.2 | **Alternator**   * 3 phase system 230/400 volt * Rated prime power Min 100 KVA * Power factor 0.8 * 4 poles * Insulation Class H * Degree of protection IP 23 * Star connection * THD <= 2 % * 50 Hz * Efficiency > 88% |  |  |
| 4.3 | Stator The stator core shall consist of high permeability, low loss steel stamping, tightly clamped and securely located within the machine casing.  The windings shall consist of electrolytic copper conductors insulated throughout with class 'H' materials.  Both ends of each stator windings shall be brought out to terminal positions on the stator casing, the phase and terminal box being arranged for 3-phase and neutral connection. |  |  |
| 4.4 | Rotor The rotor shaft and hub shall be of forged steel preferably in one piece. The rotor poles shall be constructed of steel laminations, keyed and securely fixed to the rotor hub and fitted with interconnected damper windings to absorb the cyclic irregularity of engine.  The field winding shall consist of electrolytic copper conductors insulated throughout with class 'H' materials. Rotor should be precision wet layer wound to ensure complete encapsulation of rotor winding resulting in excellent environmental protection and protection against centrifugal forces. Rotor should withstand 124% over speed. |  |  |
| 4.5 | Excitation System The main exciter output shall be fed to their main rotor windings through a 3 phase, full wave bridge rectifier. The diode bridge shall be protected against surge and voltage transients caused, for example, by short-circuit or out of phase paralleling by a surge arrestor. The automatic voltage regulator shall have following minimum features:   1. Three phase sensing for optimum voltage control with unbalanced three phase loads. 2. Volts-per-hertz regulation for optimum block load voltage and frequency recovery. 3. Steady state voltage accuracy better than 0.5 % for precise control and quick recovery. 4. Voltage regulation, 1% from no load to full load (maximum). 5. External gain adjustment for constant voltage output across the operating range. 6. No moving parts should be there. All solid-state design for better reliability. 7. Voltage adjustment range - 20% to 10%. 8. Built in under voltage and under frequency protection for voltage regulator and generator. 9. Paralleling capability. 10. Telephone Interference Factor (TIF) less than 50. 11. EMI/RFI suppressions to commercial standards. |  |  |
| **5** | Self-Mounted Control Panel The diesel generator set mounted control panel shall be of a highly reliable design with protection against short circuit, reverse battery polarity and overvoltage transient surges. Meters installed should maintain their accuracy of 0.5 %. for voltmeters and ammeters from - 40 deg. C to 70 deg. C.  The generator shall have an electronic modular control panel with solid-state microprocessor based modules for engine control, AC metering and adequate environment protection.  The panel should be equipped with self-diagnostic capability to help trouble shooting for ease of maintenance.  Panel should have one engine control module to display engine operating information, system checking diagnostics, and fault shutdown using back lighted liquid crystal display (LCD) and light emitting diodes (LEDs). LCD display shall have sequential display of operating hours, engine rpm, battery volts, oil pressure and jacket water temperature. Any of these values shall be displayed by means of a selector switch. |  |  |
|  |  |  |  |
| 6 | **Dimension:** |  |  |
| 6.1 | Length: Max 2500 mm |  |  |
| 6.2 | Width: Max 1200 mm |  |  |
| 6.3 | Height: Max. 1750 mm |  |  |
| 6.4 | Weight: Max. 1600 Kg |  |  |
|  |  |  |  |
| **B** | **ACCESSORIES & CONSUMABLES** |  |  |
| 1 | Fast moving , oil filters , air filters , Fuel filters, and one V belt (2 pieces each) |  |  |
| **C** | **STANDARD REQUIREMENTS AND INSTRUCTIONS** |  |  |
| 1 | The item must be compliant to IEC 60204 , IEC 60034-1, IEC 60072-1, IEC 60072-2 ,  IEC 60085 standard.  Each unit must be tested according to the a.m. standards by the manufacturer laboratory or other laboratory. The test certificates will have to be provided in the contracting phase.  Primary and Secondary Insulation level must be according to the a.m. standard.  Permissible overload and duration in minutes (must be according to the a.m. standard. |  |  |
| 2 | Certification as per ISO 9001 and 14001 |  |  |
| 3 | The item offered shall be designed to operate normally under the conditions of the Implementing Entities country (Syria), i.e.: - Altitude above sea level: 1000 m (max.)  - Max. ambient temperature: 50 oC - Min. ambient temperature: - 10 oC  - Average annual temperature: 35 oC - Maximal temperature variation in one day : 20 oC  - Average maximum relative humidity: 80% at 30 degree C  - (Relative humidity in some site of Syria of up to 100% is possible) |  |  |
| 6 | The equipment supplied must be new with proper serial number as proof |  |  |
| 7 | A user's operations manual and installation manual in English and in Arabic must be supplied. |  |  |
| **D** | **OPTIONS** |  |  |
| 1 | NA |  |  |
| **E** | **NOTE** |  |  |
| 1 | Bidders may propose any product/system, which is equivalent or better than the requirements specified above. |  |  |
| 2 | Bidder shall furnish a clause-by-clause commentary on the requirements above in column 3 of this TSF. Bidder who comment with texts such as "Yes", "Complied", "Refer to catalogue", copying texts directly from the technical specifications form, leave any parameter line blank and/ or submit any text or content of this nature may be considered as NON-RESPONSIVE. |  |  |
| **F** | **Documentation** |  |  |
| 1 | Bidder should provide the following documents as relevant for bid submission and refer to these in column 4 of this TSF. |  |  |
| 2 | Brochures or catalogues |  |  |
| 3 | Technical data sheet |  |  |
| 4 | Copy of Test certificates as per IEC 60034-1 and other standards for Electrical machines carried out by the manufacturer in the last 12 months from the deadline for the submission of the bid. |  |  |
| **G** | Training on equipment supplied |  |  |
| 1 | Training must be provided in Arabic at your site for 3 technical staff for 5 day. This is an activity in common for all the DGs. If Your firm cannot provide in Arabic, interpretation will have to be provided. |  |  |
| 2 | The training must include the following elements and information: |  |  |
| 3 | Basic functioning and installation of the different Diesel Generators; |  |  |
| 4 | Equipment orientation / functions; |  |  |
| 5 | Simple aspects/steps in troubleshooting of errors; |  |  |
| 6 | Basic steps in the maintenance of the equipment; |  |  |
| 7 | Safety aspects of the equipment; |  |  |
| 8 | Equipment Operation Procedures (EOP) |  |  |

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| --- | --- | --- | --- |
| TECHNICAL SPECIFICATION AND COMPATIBILITY TABLE | | | |
| 1 | 2 | 3 | 4 |
| No. | **ITEM NAME & DESCRIPTION**  **Diesel Generator (DG)**  Prime power 125 KVA – 100 KW with transfer panel | BIDDER’S OFFER | Ref. page no of Supporting Documents |
|  | **Item Number: 3** |  |  |
|  | Item description: This specification sets out the technical requirements for design, manufacturing, testing at works and supply of 125 KVA Prime power rate Automatic Diesel engine driven Generator (DG).  The Diesel Generator design shall comply with the requirements of the following IEC standards:   * IEC 60204 Electrical Equipment of Industrial Machines , * IEC 60034:Rotating Electrical Machines and IEC 60072-1, IEC 60072-2 * IEC 60085 Thermal evaluation and classification of electrical insulation.   and shall be suitable for use at the specified ambient conditions.  It is not the intent to specify completely herein all the details of the design and construction of the equipment. However, the equipment shall conform in all respects to high standards of engineering, design and workmanship and shall be capable of performing in continuous commercial operation up to the Bidder’s guarantee, in a manner acceptable to the purchaser, who will interpret the meanings of the drawings and the specification and shall have the power to reject any work or material which, in his judgment is not in accordance therewith. The offered equipment shall be complete with all components necessary for their effective and trouble free operation. Such, components be deemed to be within the scope of Bidder’s supply interceptive of whether those are specifically brought out in this specification and / or the commercial order or not. | Manufacturer:  Brand:  Type/Model:  Catalogue reference:  Country of Origin: |  |
|  | **APPLICATION** |  |  |
|  | The DG will be used to supply power to different types of residential and industrial loadswhen there is no power available from Utility |  |  |
| **A** | **DESCRIPTION OF BASIC COMPONENTS WITH TECHNICAL SPECIFICATIONS** |  |  |
|  |  |  |  |
|  | **General data** |  |  |
| 1 | Type : Diesel Generator (DG)  Rated Prime Power :  Min. 125 KVA and 100 KW with transfer panel |  |  |
| 2 | **Technical Requirements**  The diesel generators shall comprise of the following main equipment:  - Diesel engine with radiator type cooler  - Ac generator (alternator) with automatic  voltage regulator (AVR)  - Set mounted Main Breaker (MCCB)  - Set mounted control panel  - Starter control battery and engine  driven charging system  - Loose items such as flexible  exhaust pipe with gaskets and  flanges and silencer  - Common base frame  - Base fuel tank with level indicator  (gauge)  - Remote annunciator panel.  All exposed moving parts such as fans, couplings, drive belts, etc. shall be guarded in accordance with relevant standards. |  |  |
| 2 | **Kind of installation**: indoor, mounted on a common base frame according IEC. |  |  |
| 3 | **Diesel Engine** |  |  |
| 3.1 | The engine shall be:  - water-cooled,  - single block design  - four stroke cycle compression  - 4 cylinder / in line  - 1500 RPM , 50 Hz |  |  |
| 3.2 | The diesel engine shall be a completely self-conditioned unit comprising but not limited to the following:  Air cleaner, Lubricating oil filter,  Fuel filter, 24 volt starter motor,  Contactors - manually operable,  24 volt charging alternator,  Heat exchanger (radiator),Governor  Torsional vibration damper,  Alternator belt guard, Flywheel housing, Exhaust manifold(s), Lubricating oil cooler, High water temperature switch, Low oil pressure switch, Over speed switch, Jacket water heater, Jacket water centrifugal pump. |  |  |
| 3.3 | Instrument panel incorporating:  Voltmeter, Ammeter, Tachometer  Hours Run Meter, Water temperature gauge, Lubricating oil pressure gauge  Junction box with enclosed terminal strip |  |  |
| 3.4 | Governing:Mechanical/ hydro mechanical governor with 3% drop shall be provided |  |  |
| 3.5 | Cooling System An engine-mounted, heavy duty, closed circuit, tropicalised folded core radiator with blower type fan shall be sized to maintain safe operation at 50 deg. C maximum ambient temperature. The flexible connecting section between radiator and fixed exhaust louvres/intake louvres shall be sized and located to provide sufficient intake air for engine combustion and to provide required air flow through the radiator. |  |  |
| 3.6 | Air Intake System The air-intake system shall consist of the following:  - Pre cleaner  - Dry air cleaner with changeable filter  element.  - Service indicator to optimize changing of filter |  |  |
| 3.7 | Exhaust System The exhaust silencer shall be of the residential type including stainless steel flexible exhaust  pipe and fitting properly sized and installed according to IEC  Silencer shall be mounted so that its weight is not supported by the engine.  Exhaust pipe shall be sized so that it is sufficient to ensure that exhaust back pressure does not exceed the maximum limit as specified by IEC.  Exhaust pipe inside rooms/enclosures shall be lagged with heat resistant material and shall  be provided with aluminum cladding so as to have a surface temperature not exceeding  60°C. |  |  |
| 3.8 | Fuel System The fuel injection pump should be calibration free to ensure minimum down time.  Skid mounted eight (8) hours day tank with suitable drainage arrangement shall be provided.  Inlet and outlet fuel connections to engine should be through suitable flexible lines.  An engine mounted fuel filter, fuel pressure gauge and engine fuel priming pump shall be  provided. |  |  |
| 3.9 | Lubrication System The lubrication shall be forced feed equipped with a gear driven lube oil pump. The filters should be easily replaceable |  |  |
| 3.10 | Starting System A 24V D.C. electric starting system with positive engagement drive shall be furnished. Unit should be able to take up load in maximum 15 sec. |  |  |
| 3.11 | Batteries and Battery Charger Heavy duty lead-acid storage batteries for using in conjunction with the electric starting system shall be provided. Batteries shall be rated for minimum three start attempts. A battery rack and necessary cable and clamps shall be provided.  **The charger** shall employ transistor controlled magnetic amplifier circuits to provide continuous taper charging and shall maintain rated output voltage within +/- 1% from no load to full load with boost/float control. It should be rated at minimum 8A and be short-circuit proof to withstand the starting inrush of current. |  |  |
| 3.12 | Mounting System To achieve simplicity in foundation work, the set shall preferably be mounted on welded steel common bedplate with vibration isolators.  Flexible connections shall be provided to all ducts and pipes to minimize conduction of noise. |  |  |
| 4. | **Alternating Current (A.C.) Generators** (Alternators) |  |  |
| 4.1 | General Generators shall be brushless, single bearing salient pole, revolving field self regulating alternators of fabricated steel construction throughout, and shall comply fully with IEC 60034. They shall have a dynamically balanced rotating field, salient pole construction with heavy damper windings. The machine shall have an exciter and liberally rated silicon diodes assembly with a self contained excitation system with automatic voltage regulator (AVR) maximum  + 1% . It shall be screen protected and drip proof with a large terminal box suitable for the outgoing cabling.  The generators shall be star connected.  The generators shall be capable of maintaining their continuous maximum rated output when operating within ±5% rated voltage and at rated power factor.  All windings shall be tropicalised and suitably impregnated to withstand the site ambient conditions. |  |  |
| 4.2 | **Alternator**   * 3 phase system 230/400 volt * Rated prime power Min 125 KVA * Power factor 0.8 * 4 poles * Insulation Class H * Degree of protection IP 23 * Star connection * THD <= 2 % * 50 Hz * Efficiency > 88% |  |  |
| 4.3 | Stator The stator core shall consist of high permeability, low loss steel stamping, tightly clamped and securely located within the machine casing.  The windings shall consist of electrolytic copper conductors insulated throughout with class 'H' materials.  Both ends of each stator windings shall be brought out to terminal positions on the stator casing, the phase and terminal box being arranged for 3-phase and neutral connection. |  |  |
| 4.4 | Rotor The rotor shaft and hub shall be of forged steel preferably in one piece. The rotor poles shall be constructed of steel laminations, keyed and securely fixed to the rotor hub and fitted with interconnected damper windings to absorb the cyclic irregularity of engine.  The field winding shall consist of electrolytic copper conductors insulated throughout with class 'H' materials. Rotor should be precision wet layer wound to ensure complete encapsulation of rotor winding resulting in excellent environmental protection and protection against centrifugal forces. Rotor should withstand 124% over speed. |  |  |
| 4.5 | Excitation System The main exciter output shall be fed to their main rotor windings through a 3 phase, full wave bridge rectifier. The diode bridge shall be protected against surge and voltage transients caused, for example, by short-circuit or out of phase paralleling by a surge arrestor. The automatic voltage regulator shall have following minimum features:   1. Three phase sensing for optimum voltage control with unbalanced three phase loads. 2. Volts-per-hertz regulation for optimum block load voltage and frequency recovery. 3. Steady state voltage accuracy better than 0.5 % for precise control and quick recovery. 4. Voltage regulation, 1% from no load to full load (maximum). 5. External gain adjustment for constant voltage output across the operating range. 6. No moving parts should be there. All solid-state design for better reliability. 7. Voltage adjustment range - 20% to 10%. 8. Built in under voltage and under frequency protection for voltage regulator and generator. 9. Paralleling capability. 10. Telephone Interference Factor (TIF) less than 50. 11. EMI/RFI suppressions to commercial standards. |  |  |
| **5** | Self-Mounted Control Panel The diesel generator set mounted control panel shall be of a highly reliable design with protection against short circuit, reverse battery polarity and overvoltage transient surges. Meters installed should maintain their accuracy of 0.5 %. for voltmeters and ammeters from - 40 deg. C to 70 deg. C.  The generator shall have an electronic modular control panel with solid-state microprocessor based modules for engine control, AC metering and adequate environment protection.  The panel should be equipped with self-diagnostic capability to help trouble shooting for ease of maintenance.  Panel should have one engine control module to display engine operating information, system checking diagnostics, and fault shutdown using back lighted liquid crystal display (LCD) and light emitting diodes (LEDs). LCD display shall have sequential display of operating hours, engine rpm, battery volts, oil pressure and jacket water temperature. Any of these values shall be displayed by means of a selector switch. |  |  |
|  |  |  |  |
| 6 | **Dimension:** |  |  |
| 6.1 | Length: Max 2600 mm |  |  |
| 6.2 | Width: Max 1250 mm |  |  |
| 6.3 | Height: Max. 1750 mm |  |  |
| 6.4 | Weight: Max. 1600 Kg |  |  |
|  |  |  |  |
| **B** | **ACCESSORIES & CONSUMABLES** |  |  |
| 1 | Fast moving , oil filters , air filters , Fuel filters, and one V belt (2 pieces each) |  |  |
| **C** | **STANDARD REQUIREMENTS AND INSTRUCTIONS** |  |  |
| 1 | The item must be compliant to IEC 60204 , IEC 60034-1, IEC 60072-1, IEC 60072-2 ,  IEC 60085 standard.  Each unit must be tested according to the a.m. standards by the manufacturer laboratory or other laboratory. The test certificates will have to be provided in the contracting phase.  Primary and Secondary Insulation level must be according to the a.m. standard.  Permissible overload and duration in minutes (must be according to the a.m. standard. |  |  |
| 2 | Certification as per ISO 9001 and 14001 |  |  |
| 3 | The item offered shall be designed to operate normally under the conditions of the Implementing Entities country (Syria), i.e.: - Altitude above sea level: 1000 m (max.)  - Max. ambient temperature: 50 oC - Min. ambient temperature: - 10 oC  - Average annual temperature: 35 oC - Maximal temperature variation in one day : 20 oC  - Average maximum relative humidity: 80% at 30 degree C  - (Relative humidity in some site of Syria of up to 100% is possible) |  |  |
| 6 | The equipment supplied must be new with proper serial number as proof |  |  |
| 7 | A user's operations manual and installation manual in English and in Arabic must be supplied. |  |  |
| **D** | **OPTIONS** |  |  |
| 1 | NA |  |  |
| **E** | **NOTE** |  |  |
| 1 | Bidders may propose any product/system, which is equivalent or better than the requirements specified above. |  |  |
| 2 | Bidder shall furnish a clause-by-clause commentary on the requirements above in column 3 of this TSF. Bidder who comment with texts such as "Yes", "Complied", "Refer to catalogue", copying texts directly from the technical specifications form, leave any parameter line blank and/ or submit any text or content of this nature may be considered as NON-RESPONSIVE. |  |  |
| **F** | **Documentation** |  |  |
| 1 | Bidder should provide the following documents as relevant for bid submission and refer to these in column 4 of this TSF. |  |  |
| 2 | Brochures or catalogues |  |  |
| 3 | Technical data sheet |  |  |
| 4 | Copy of Test certificates as per IEC 60034-1 and other standards for Electrical machines carried out by the manufacturer in the last 12 months from the deadline for the submission of the bid. |  |  |
| **G** | Training on equipment supplied |  |  |
| 1 | Training must be provided in Arabic at your site for 3 technical staff for 5 day. This is an activity in common for all the DGs. If Your firm cannot provide in Arabic, interpretation will have to be provided. |  |  |
| 2 | The training must include the following elements and information: |  |  |
| 3 | Basic functioning and installation of the different Diesel Generators; |  |  |
| 4 | Equipment orientation / functions; |  |  |
| 5 | Simple aspects/steps in troubleshooting of errors; |  |  |
| 6 | Basic steps in the maintenance of the equipment; |  |  |
| 7 | Safety aspects of the equipment; |  |  |
| 8 | Equipment Operation Procedures (EOP) |  |  |

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| --- | --- | --- | --- |
| TECHNICAL SPECIFICATION AND COMPATIBILITY TABLE | | | |
| 1 | 2 | 3 | 4 |
| No. | **ITEM NAME & DESCRIPTION**  **Diesel Generator (DG)**  Prime power 150 KVA – 120 KW with transfer panel | BIDDER’S OFFER | Ref. page no of Supporting Documents |
|  | **Item Number: 4** |  |  |
|  | Item description: This specification sets out the technical requirements for design, manufacturing, testing at works and supply of 150 KVA Prime power rate Automatic Diesel engine driven Generator (DG).  The Diesel Generator design shall comply with the requirements of the following IEC standards:   * IEC 60204 Electrical Equipment of Industrial Machines , * IEC 60034:Rotating Electrical Machines and IEC 60072-1, IEC 60072-2 * IEC 60085 Thermal evaluation and classification of electrical insulation.   and shall be suitable for use at the specified ambient conditions.  It is not the intent to specify completely herein all the details of the design and construction of the equipment. However, the equipment shall conform in all respects to high standards of engineering, design and workmanship and shall be capable of performing in continuous commercial operation up to the Bidder’s guarantee, in a manner acceptable to the purchaser, who will interpret the meanings of the drawings and the specification and shall have the power to reject any work or material which, in his judgment is not in accordance therewith. The offered equipment shall be complete with all components necessary for their effective and trouble free operation. Such, components be deemed to be within the scope of Bidder’s supply interceptive of whether those are specifically brought out in this specification and / or the commercial order or not. | Manufacturer:  Brand:  Type/Model:  Catalogue reference:  Country of Origin: |  |
|  | **APPLICATION** |  |  |
|  | The DG will be used to supply power to different types of residential and industrial loadswhen there is no power available from Utility |  |  |
| **A** | **DESCRIPTION OF BASIC COMPONENTS WITH TECHNICAL SPECIFICATIONS** |  |  |
|  |  |  |  |
|  | **General data** |  |  |
| 1 | Type : Diesel Generator (DG)  Rated Prime Power :  Min. 150 KVA and 120 KW with transfer panel |  |  |
| 2 | **Technical Requirements**  The diesel generators shall comprise of the following main equipment:  - Diesel engine with radiator type cooler  - Ac generator (alternator) with automatic  voltage regulator (AVR)  - Set mounted Main Breaker (MCCB)  - Set mounted control panel  - Starter control battery and engine  driven charging system  - Loose items such as flexible  exhaust pipe with gaskets and  flanges and silencer  - Common base frame  - Base fuel tank with level indicator  (gauge)  - Remote annunciator panel.  All exposed moving parts such as fans, couplings, drive belts, etc. shall be guarded in accordance with relevant standards. |  |  |
| 2 | **Kind of installation**: indoor, mounted on a common base frame according IEC. |  |  |
| 3 | **Diesel Engine** |  |  |
| 3.1 | The engine shall be:  - water-cooled,  - single block design  - four stroke cycle compression  - 6 cylinder / in line  - 1500 RPM , 50 Hz |  |  |
| 3.2 | The diesel engine shall be a completely self-conditioned unit comprising but not limited to the following:  Air cleaner, Lubricating oil filter,  Fuel filter, 24 volt starter motor,  Contactors - manually operable,  24 volt charging alternator,  Heat exchanger (radiator),Governor  Torsional vibration damper,  Alternator belt guard, Flywheel housing, Exhaust manifold(s), Lubricating oil cooler, High water temperature switch, Low oil pressure switch, Over speed switch, Jacket water heater, Jacket water centrifugal pump. |  |  |
| 3.3 | Instrument panel incorporating:  Voltmeter, Ammeter, Tachometer  Hours Run Meter, Water temperature gauge, Lubricating oil pressure gauge  Junction box with enclosed terminal strip |  |  |
| 3.4 | Governing:Mechanical/ hydro mechanical governor with 3% drop shall be provided |  |  |
| 3.5 | Cooling System An engine-mounted, heavy duty, closed circuit, tropicalised folded core radiator with blower type fan shall be sized to maintain safe operation at 50 deg. C maximum ambient temperature. The flexible connecting section between radiator and fixed exhaust louvres/intake louvres shall be sized and located to provide sufficient intake air for engine combustion and to provide required air flow through the radiator. |  |  |
| 3.6 | Air Intake System The air-intake system shall consist of the following:  - Pre cleaner  - Dry air cleaner with changeable filter  element.  - Service indicator to optimize changing of filter |  |  |
| 3.7 | Exhaust System The exhaust silencer shall be of the residential type including stainless steel flexible exhaust  pipe and fitting properly sized and installed according to IEC  Silencer shall be mounted so that its weight is not supported by the engine.  Exhaust pipe shall be sized so that it is sufficient to ensure that exhaust back pressure does not exceed the maximum limit as specified by IEC.  Exhaust pipe inside rooms/enclosures shall be lagged with heat resistant material and shall  be provided with aluminum cladding so as to have a surface temperature not exceeding  60°C. |  |  |
| 3.8 | Fuel System The fuel injection pump should be calibration free to ensure minimum down time.  Skid mounted eight (8) hours day tank with suitable drainage arrangement shall be provided.  Inlet and outlet fuel connections to engine should be through suitable flexible lines.  An engine mounted fuel filter, fuel pressure gauge and engine fuel priming pump shall be  provided. |  |  |
| 3.9 | Lubrication System The lubrication shall be forced feed equipped with a gear driven lube oil pump. The filters should be easily replaceable |  |  |
| 3.10 | Starting System A 24V D.C. electric starting system with positive engagement drive shall be furnished. Unit should be able to take up load in maximum 15 sec. |  |  |
| 3.11 | Batteries and Battery Charger Heavy duty lead-acid storage batteries for using in conjunction with the electric starting system shall be provided. Batteries shall be rated for minimum three start attempts. A battery rack and necessary cable and clamps shall be provided.  **The charger** shall employ transistor controlled magnetic amplifier circuits to provide continuous taper charging and shall maintain rated output voltage within +/- 1% from no load to full load with boost/float control. It should be rated at minimum 8A and be short-circuit proof to withstand the starting inrush of current. |  |  |
| 3.12 | Mounting System To achieve simplicity in foundation work, the set shall preferably be mounted on welded steel common bedplate with vibration isolators.  Flexible connections shall be provided to all ducts and pipes to minimize conduction of noise. |  |  |
| 4. | **Alternating Current (A.C.) Generators** (Alternators) |  |  |
| 4.1 | General Generators shall be brushless, single bearing salient pole, revolving field self regulating alternators of fabricated steel construction throughout, and shall comply fully with IEC 60034. They shall have a dynamically balanced rotating field, salient pole construction with heavy damper windings. The machine shall have an exciter and liberally rated silicon diodes assembly with a self contained excitation system with automatic voltage regulator (AVR) maximum  + 1% . It shall be screen protected and drip proof with a large terminal box suitable for the outgoing cabling.  The generators shall be star connected.  The generators shall be capable of maintaining their continuous maximum rated output when operating within ±5% rated voltage and at rated power factor.  All windings shall be tropicalised and suitably impregnated to withstand the site ambient conditions. |  |  |
| 4.2 | **Alternator**   * 3 phase system 230/400 volt * Rated prime power Min 150 KVA * Power factor 0.8 * 4 poles * Insulation Class H * Degree of protection IP 23 * Star connection * THD <= 2 % * 50 Hz * Efficiency > 88% |  |  |
| 4.3 | Stator The stator core shall consist of high permeability, low loss steel stamping, tightly clamped and securely located within the machine casing.  The windings shall consist of electrolytic copper conductors insulated throughout with class 'H' materials.  Both ends of each stator windings shall be brought out to terminal positions on the stator casing, the phase and terminal box being arranged for 3-phase and neutral connection. |  |  |
| 4.4 | Rotor The rotor shaft and hub shall be of forged steel preferably in one piece. The rotor poles shall be constructed of steel laminations, keyed and securely fixed to the rotor hub and fitted with interconnected damper windings to absorb the cyclic irregularity of engine.  The field winding shall consist of electrolytic copper conductors insulated throughout with class 'H' materials. Rotor should be precision wet layer wound to ensure complete encapsulation of rotor winding resulting in excellent environmental protection and protection against centrifugal forces. Rotor should withstand 124% over speed. |  |  |
| 4.5 | Excitation System The main exciter output shall be fed to their main rotor windings through a 3 phase, full wave bridge rectifier. The diode bridge shall be protected against surge and voltage transients caused, for example, by short-circuit or out of phase paralleling by a surge arrestor. The automatic voltage regulator shall have following minimum features:   1. Three phase sensing for optimum voltage control with unbalanced three phase loads. 2. Volts-per-hertz regulation for optimum block load voltage and frequency recovery. 3. Steady state voltage accuracy better than 0.5 % for precise control and quick recovery. 4. Voltage regulation, 1% from no load to full load (maximum). 5. External gain adjustment for constant voltage output across the operating range. 6. No moving parts should be there. All solid-state design for better reliability. 7. Voltage adjustment range - 20% to 10%. 8. Built in under voltage and under frequency protection for voltage regulator and generator. 9. Paralleling capability. 10. Telephone Interference Factor (TIF) less than 50. 11. EMI/RFI suppressions to commercial standards. |  |  |
| **5** | Self-Mounted Control Panel The diesel generator set mounted control panel shall be of a highly reliable design with protection against short circuit, reverse battery polarity and overvoltage transient surges. Meters installed should maintain their accuracy of 0.5 %. for voltmeters and ammeters from - 40 deg. C to 70 deg. C.  The generator shall have an electronic modular control panel with solid-state microprocessor based modules for engine control, AC metering and adequate environment protection.  The panel should be equipped with self-diagnostic capability to help trouble shooting for ease of maintenance.  Panel should have one engine control module to display engine operating information, system checking diagnostics, and fault shutdown using back lighted liquid crystal display (LCD) and light emitting diodes (LEDs). LCD display shall have sequential display of operating hours, engine rpm, battery volts, oil pressure and jacket water temperature. Any of these values shall be displayed by means of a selector switch. |  |  |
|  |  |  |  |
| 6 | **Dimension:** |  |  |
| 6.1 | Length: Max 2650 mm |  |  |
| 6.2 | Width: Max 1300 mm |  |  |
| 6.3 | Height: Max. 1800 mm |  |  |
| 6.4 | Weight: Max. 1800 Kg |  |  |
|  |  |  |  |
| **B** | **ACCESSORIES & CONSUMABLES** |  |  |
| 1 | Fast moving , oil filters , air filters , Fuel filters, and one V belt (2 pieces each) |  |  |
| **C** | **STANDARD REQUIREMENTS AND INSTRUCTIONS** |  |  |
| 1 | The item must be compliant to IEC 60204 , IEC 60034-1, IEC 60072-1, IEC 60072-2 ,  IEC 60085 standard.  Each unit must be tested according to the a.m. standards by the manufacturer laboratory or other laboratory. The test certificates will have to be provided in the contracting phase.  Primary and Secondary Insulation level must be according to the a.m. standard.  Permissible overload and duration in minutes (must be according to the a.m. standard. |  |  |
| 2 | Certification as per ISO 9001 and 14001 |  |  |
| 3 | The item offered shall be designed to operate normally under the conditions of the Implementing Entities country (Syria), i.e.: - Altitude above sea level: 1000 m (max.)  - Max. ambient temperature: 50 oC - Min. ambient temperature: - 10 oC  - Average annual temperature: 35 oC - Maximal temperature variation in one day : 20 oC  - Average maximum relative humidity: 80% at 30 degree C  - (Relative humidity in some site of Syria of up to 100% is possible) |  |  |
| 6 | The equipment supplied must be new with proper serial number as proof |  |  |
| 7 | A user's operations manual and installation manual in English and in Arabic must be supplied. |  |  |
| **D** | **OPTIONS** |  |  |
| 1 | NA |  |  |
| **E** | **NOTE** |  |  |
| 1 | Bidders may propose any product/system, which is equivalent or better than the requirements specified above. |  |  |
| 2 | Bidder shall furnish a clause-by-clause commentary on the requirements above in column 3 of this TSF. Bidder who comment with texts such as "Yes", "Complied", "Refer to catalogue", copying texts directly from the technical specifications form, leave any parameter line blank and/ or submit any text or content of this nature may be considered as NON-RESPONSIVE. |  |  |
| **F** | **Documentation** |  |  |
| 1 | Bidder should provide the following documents as relevant for bid submission and refer to these in column 4 of this TSF. |  |  |
| 2 | Brochures or catalogues |  |  |
| 3 | Technical data sheet |  |  |
| 4 | Copy of Test certificates as per IEC 60034-1 and other standards for Electrical machines carried out by the manufacturer in the last 12 months from the deadline for the submission of the bid. |  |  |
| **G** | Training on equipment supplied |  |  |
| 1 | Training must be provided in Arabic at your site for 3 technical staff for 5 day. This is an activity in common for all the DGs. If Your firm cannot provide in Arabic, interpretation will have to be provided. |  |  |
| 2 | The training must include the following elements and information: |  |  |
| 3 | Basic functioning and installation of the different Diesel Generators; |  |  |
| 4 | Equipment orientation / functions; |  |  |
| 5 | Simple aspects/steps in troubleshooting of errors; |  |  |
| 6 | Basic steps in the maintenance of the equipment; |  |  |
| 7 | Safety aspects of the equipment; |  |  |
| 8 | Equipment Operation Procedures (EOP) |  |  |

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| --- | --- | --- | --- |
| TECHNICAL SPECIFICATION AND COMPATIBILITY TABLE | | | |
| 1 | 2 | 3 | 4 |
| No. | **ITEM NAME & DESCRIPTION**  **Diesel Generator (DG)**  Prime power 200 KVA – 160 KW with transfer panel | BIDDER’S OFFER | Ref. page no of Supporting Documents |
|  | **Item Number: 5** |  |  |
|  | Item description: This specification sets out the technical requirements for design, manufacturing, testing at works and supply of 200 KVA Standby rate Automatic Diesel engine driven Generator (DG).  The Diesel Generator design shall comply with the requirements of the following IEC standards:   * IEC 60204 Electrical Equipment of Industrial Machines , * IEC 60034:Rotating Electrical Machines and IEC 60072-1, IEC 60072-2 * IEC 60085 Thermal evaluation and classification of electrical insulation.   and shall be suitable for use at the specified ambient conditions.  It is not the intent to specify completely herein all the details of the design and construction of the equipment. However, the equipment shall conform in all respects to high standards of engineering, design and workmanship and shall be capable of performing in continuous commercial operation up to the Bidder’s guarantee, in a manner acceptable to the purchaser, who will interpret the meanings of the drawings and the specification and shall have the power to reject any work or material which, in his judgment is not in accordance therewith. The offered equipment shall be complete with all components necessary for their effective and trouble free operation. Such, components be deemed to be within the scope of Bidder’s supply interceptive of whether those are specifically brought out in this specification and / or the commercial order or not. | Manufacturer:  Brand:  Type/Model:  Catalogue reference:  Country of Origin: |  |
|  | **APPLICATION** |  |  |
|  | The DG will be used to supply power to different types of residential and industrial loadswhen there is no power available from Utility |  |  |
| **A** | **DESCRIPTION OF BASIC COMPONENTS WITH TECHNICAL SPECIFICATIONS** |  |  |
|  |  |  |  |
|  | **General data** |  |  |
| 1 | Type : Diesel Generator (DG)  Rated Prime Power :  Min. 200 KVA and 160 KW with transfer panel |  |  |
| 2 | **Technical Requirements**  The diesel generators shall comprise of the following main equipment:  - Diesel engine with radiator type cooler  - Ac generator (alternator) with automatic  voltage regulator (AVR)  - Set mounted Main Breaker (MCCB)  - Set mounted control panel  - Starter control battery and engine  driven charging system  - Loose items such as flexible  exhaust pipe with gaskets and  flanges and silencer  - Common base frame  - Base fuel tank with level indicator  (gauge)  - Remote annunciator panel.  All exposed moving parts such as fans, couplings, drive belts, etc. shall be guarded in accordance with relevant standards. |  |  |
| 2 | **Kind of installation**: indoor, mounted on a common base frame according IEC. |  |  |
| 3 | **Diesel Engine** |  |  |
| 3.1 | The engine shall be:  - water-cooled,  - single block design  - four stroke cycle compression  - 6 cylinder / in line  - 1500 RPM , 50 Hz |  |  |
| 3.2 | The diesel engine shall be a completely self-conditioned unit comprising but not limited to the following:  Air cleaner, Lubricating oil filter,  Fuel filter, 24 volt starter motor,  Contactors - manually operable,  24 volt charging alternator,  Heat exchanger (radiator),Governor  Torsional vibration damper,  Alternator belt guard, Flywheel housing, Exhaust manifold(s), Lubricating oil cooler, High water temperature switch, Low oil pressure switch, Over speed switch, Jacket water heater, Jacket water centrifugal pump. |  |  |
| 3.3 | Instrument panel incorporating:  Voltmeter, Ammeter, Tachometer  Hours Run Meter, Water temperature gauge, Lubricating oil pressure gauge  Junction box with enclosed terminal strip |  |  |
| 3.4 | Governing:Mechanical/ hydro mechanical governor with 3% drop shall be provided |  |  |
| 3.5 | Cooling System An engine-mounted, heavy duty, closed circuit, tropicalised folded core radiator with blower type fan shall be sized to maintain safe operation at 50 deg. C maximum ambient temperature. The flexible connecting section between radiator and fixed exhaust louvres/intake louvres shall be sized and located to provide sufficient intake air for engine combustion and to provide required air flow through the radiator. |  |  |
| 3.6 | Air Intake System The air-intake system shall consist of the following:  - Pre cleaner  - Dry air cleaner with changeable filter  element.  - Service indicator to optimize changing of filter |  |  |
| 3.7 | Exhaust System The exhaust silencer shall be of the residential type including stainless steel flexible exhaust  pipe and fitting properly sized and installed according to IEC  Silencer shall be mounted so that its weight is not supported by the engine.  Exhaust pipe shall be sized so that it is sufficient to ensure that exhaust back pressure does not exceed the maximum limit as specified by IEC.  Exhaust pipe inside rooms/enclosures shall be lagged with heat resistant material and shall  be provided with aluminum cladding so as to have a surface temperature not exceeding  60°C. |  |  |
| 3.8 | Fuel System The fuel injection pump should be calibration free to ensure minimum down time.  Skid mounted eight (8) hours day tank with suitable drainage arrangement shall be provided.  Inlet and outlet fuel connections to engine should be through suitable flexible lines.  An engine mounted fuel filter, fuel pressure gauge and engine fuel priming pump shall be  provided. |  |  |
| 3.9 | Lubrication System The lubrication shall be forced feed equipped with a gear driven lube oil pump. The filters should be easily replaceable |  |  |
| 3.10 | Starting System A 24V D.C. electric starting system with positive engagement drive shall be furnished. Unit should be able to take up load in maximum 15 sec. |  |  |
| 3.11 | Batteries and Battery Charger Heavy duty lead-acid storage batteries for using in conjunction with the electric starting system shall be provided. Batteries shall be rated for minimum three start attempts. A battery rack and necessary cable and clamps shall be provided.  **The charger** shall employ transistor controlled magnetic amplifier circuits to provide continuous taper charging and shall maintain rated output voltage within +/- 1% from no load to full load with boost/float control. It should be rated at minimum 8A and be short-circuit proof to withstand the starting inrush of current. |  |  |
| 3.12 | Mounting System To achieve simplicity in foundation work, the set shall preferably be mounted on welded steel common bedplate with vibration isolators.  Flexible connections shall be provided to all ducts and pipes to minimize conduction of noise. |  |  |
| 4. | **Alternating Current (A.C.) Generators** (Alternators) |  |  |
| 4.1 | General Generators shall be brushless, single bearing salient pole, revolving field self regulating alternators of fabricated steel construction throughout, and shall comply fully with IEC 60034. They shall have a dynamically balanced rotating field, salient pole construction with heavy damper windings. The machine shall have an exciter and liberally rated silicon diodes assembly with a self contained excitation system with automatic voltage regulator (AVR) maximum  + 1% . It shall be screen protected and drip proof with a large terminal box suitable for the outgoing cabling.  The generators shall be star connected.  The generators shall be capable of maintaining their continuous maximum rated output when operating within ±5% rated voltage and at rated power factor.  All windings shall be tropicalised and suitably impregnated to withstand the site ambient conditions. |  |  |
| 4.2 | **Alternator**   * 3 phase system 230/400 volt * Rated power Min 200 KVA * Power factor min. 0.8 * 4 poles * Insulation Class H * Degree of protection IP 23 * Star connection * THD <= 2 % * 50 Hz * Efficiency > 92% |  |  |
| 4.3 | Stator The stator core shall consist of high permeability, low loss steel stamping, tightly clamped and securely located within the machine casing.  The windings shall consist of electrolytic copper conductors insulated throughout with class 'H' materials.  Both ends of each stator windings shall be brought out to terminal positions on the stator casing, the phase and terminal box being arranged for 3-phase and neutral connection. |  |  |
| 4.4 | Rotor The rotor shaft and hub shall be of forged steel preferably in one piece. The rotor poles shall be constructed of steel laminations, keyed and securely fixed to the rotor hub and fitted with interconnected damper windings to absorb the cyclic irregularity of engine.  The field winding shall consist of electrolytic copper conductors insulated throughout with class 'H' materials. Rotor should be precision wet layer wound to ensure complete encapsulation of rotor winding resulting in excellent environmental protection and protection against centrifugal forces. Rotor should withstand 124% over speed. |  |  |
| 4.5 | Excitation System The main exciter output shall be fed to their main rotor windings through a 3 phase, full wave bridge rectifier. The diode bridge shall be protected against surge and voltage transients caused, for example, by short-circuit or out of phase paralleling by a surge arrestor. The automatic voltage regulator shall have following minimum features:   1. Three phase sensing for optimum voltage control with unbalanced three phase loads. 2. Volts-per-hertz regulation for optimum block load voltage and frequency recovery. 3. Steady state voltage accuracy better than 0.5 % for precise control and quick recovery. 4. Voltage regulation, 1% from no load to full load (maximum). 5. External gain adjustment for constant voltage output across the operating range. 6. No moving parts should be there. All solid-state design for better reliability. 7. Voltage adjustment range - 20% to 10%. 8. Built in under voltage and under frequency protection for voltage regulator and generator. 9. Paralleling capability. 10. Telephone Interference Factor (TIF) less than 50. 11. EMI/RFI suppressions to commercial standards. |  |  |
| **5** | Self-Mounted Control Panel The diesel generator set mounted control panel shall be of a highly reliable design with protection against short circuit, reverse battery polarity and overvoltage transient surges. Meters installed should maintain their accuracy of 0.5 %. for voltmeters and ammeters from - 40 deg. C to 70 deg. C.  The generator shall have an electronic modular control panel with solid-state microprocessor based modules for engine control, AC metering and adequate environment protection.  The panel should be equipped with self-diagnostic capability to help trouble shooting for ease of maintenance.  Panel should have one engine control module to display engine operating information, system checking diagnostics, and fault shutdown using back lighted liquid crystal display (LCD) and light emitting diodes (LEDs). LCD display shall have sequential display of operating hours, engine rpm, battery volts, oil pressure and jacket water temperature. Any of these values shall be displayed by means of a selector switch. |  |  |
|  |  |  |  |
| 6 | **Dimension:** |  |  |
| 6.1 | Length: Max 3000 mm |  |  |
| 6.2 | Width: Max 1200 mm |  |  |
| 6.3 | Height: Max 1750 mm |  |  |
| 6.4 | Weight: Max 1800 Kg |  |  |
|  |  |  |  |
| **B** | **ACCESSORIES & CONSUMABLES** |  |  |
| 1 | Fast moving , oil filters , air filters , Fuel filters, and one V belt (2 pieces each) |  |  |
| **C** | **STANDARD REQUIREMENTS AND INSTRUCTIONS** |  |  |
| 1 | The item must be compliant to IEC 60204 , IEC 60034-1, IEC 60072-1, IEC 60072-2 ,  IEC 60085 standard.  Each unit must be tested according to the a.m. standards by the manufacturer laboratory or other laboratory. The test certificates will have to be provided in the contracting phase.  Primary and Secondary Insulation level must be according to the a.m. standard.  Permissible overload and duration in minutes (must be according to the a.m. standard. |  |  |
| 2 | Certification as per ISO 9001 and 14001 |  |  |
| 3 | The item offered shall be designed to operate normally under the conditions of the Implementing Entities country (Syria), i.e.: - Altitude above sea level: 1000 m (max.)  - Max. ambient temperature: 50 oC - Min. ambient temperature: - 10 oC  - Average annual temperature: 35 oC - Maximal temperature variation in one day : 20 oC  - Average maximum relative humidity: 80% at 30 degree C  - (Relative humidity in some site of Syria of up to 100% is possible) |  |  |
| 6 | The equipment supplied must be new with proper serial number as proof |  |  |
| 7 | A user's operations manual and installation manual in English and in Arabic must be supplied. |  |  |
| **D** | **OPTIONS** |  |  |
| 1 | NA |  |  |
| **E** | **NOTE** |  |  |
| 1 | Bidders may propose any product/system, which is equivalent or better than the requirements specified above. |  |  |
| 2 | Bidder shall furnish a clause-by-clause commentary on the requirements above in column 3 of this TSF. Bidder who comment with texts such as "Yes", "Complied", "Refer to catalogue", copying texts directly from the technical specifications form, leave any parameter line blank and/ or submit any text or content of this nature may be considered as NON-RESPONSIVE. |  |  |
| **F** | **Documentation** |  |  |
| 1 | Bidder should provide the following documents as relevant for bid submission and refer to these in column 4 of this TSF. |  |  |
| 2 | Brochures or catalogues |  |  |
| 3 | Technical data sheet |  |  |
| 4 | Copy of Test certificates as per IEC 60034-1 and other standards for Electrical machines carried out by the manufacturer in the last 12 months from the deadline for the submission of the bid. |  |  |
| **G** | Training on equipment supplied |  |  |
| 1 | Training must be provided in Arabic at your site for 3 technical staff for 5 day. This is an activity in common for all the DGs. If Your firm cannot provide in Arabic, interpretation will have to be provided. |  |  |
| 2 | The training must include the following elements and information: |  |  |
| 3 | Basic functioning and installation of the different Diesel Generators; |  |  |
| 4 | Equipment orientation / functions; |  |  |
| 5 | Simple aspects/steps in troubleshooting of errors; |  |  |
| 6 | Basic steps in the maintenance of the equipment; |  |  |
| 7 | Safety aspects of the equipment; |  |  |
| 8 | Equipment Operation Procedures (EOP) |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| TECHNICAL SPECIFICATION AND COMPATIBILITY TABLE | | | |
| 1 | 2 | 3 | 4 |
| No. | **ITEM NAME & DESCRIPTION**  **Diesel Generator (DG)**  Prime power 250 KVA – 200 KW with transfer panel | BIDDER’S OFFER | Ref. page no of Supporting Documents |
|  | **Item Number: 6** |  |  |
|  | Item description: This specification sets out the technical requirements for design, manufacturing, testing at works and supply of 240 KVA prime rate Automatic Diesel engine driven Generator (DG).  The Diesel Generator design shall comply with the requirements of the following IEC standards:   * IEC 60204 Electrical Equipment of Industrial Machines , * IEC 60034:Rotating Electrical Machines and IEC 60072-1, IEC 60072-2 * IEC 60085 Thermal evaluation and classification of electrical insulation.   and shall be suitable for use at the specified ambient conditions.  It is not the intent to specify completely herein all the details of the design and construction of the equipment. However, the equipment shall conform in all respects to high standards of engineering, design and workmanship and shall be capable of performing in continuous commercial operation up to the Bidder’s guarantee, in a manner acceptable to the purchaser, who will interpret the meanings of the drawings and the specification and shall have the power to reject any work or material which, in his judgment is not in accordance therewith. The offered equipment shall be complete with all components necessary for their effective and trouble free operation. Such, components be deemed to be within the scope of Bidder’s supply interceptive of whether those are specifically brought out in this specification and / or the commercial order or not. | Manufacturer:  Brand:  Type/Model:  Catalogue reference:  Country of Origin: |  |
|  | **APPLICATION** |  |  |
|  | The DG will be used to supply power to different types of residential and industrial loadswhen there is no power available from Utility |  |  |
| **A** | **DESCRIPTION OF BASIC COMPONENTS WITH TECHNICAL SPECIFICATIONS** |  |  |
|  |  |  |  |
|  | **General data** |  |  |
| 1 | Type : Diesel Generator (DG)  Rated Prime Power :  Min. 250 KVA and 200 KW with transfer panel |  |  |
| 2 | **Technical Requirements**  The diesel generators shall comprise of the following main equipment:  - Diesel engine with radiator type cooler  - Ac generator (alternator) with automatic  voltage regulator (AVR)  - Set mounted Main Breaker (MCCB)  - Set mounted control panel  - Starter control battery and engine  driven charging system  - Loose items such as flexible  exhaust pipe with gaskets and  flanges and silencer  - Common base frame  - Base fuel tank with level indicator  (gauge)  - Remote annunciator panel.  All exposed moving parts such as fans, couplings, drive belts, etc. shall be guarded in accordance with relevant standards. |  |  |
| 2 | **Kind of installation**: indoor, mounted on a common base frame according IEC. |  |  |
| 3 | **Diesel Engine** |  |  |
| 3.1 | The engine shall be:  - water-cooled,  - single block design  - four stroke cycle compression  - 6 cylinder / in line  - 1500 RPM , 50 Hz |  |  |
| 3.2 | The diesel engine shall be a completely self-conditioned unit comprising but not limited to the following:  Air cleaner, Lubricating oil filter,  Fuel filter, 24 volt starter motor,  Contactors - manually operable,  24 volt charging alternator,  Heat exchanger (radiator),Governor  Torsional vibration damper,  Alternator belt guard, Flywheel housing, Exhaust manifold(s), Lubricating oil cooler, High water temperature switch, Low oil pressure switch, Over speed switch, Jacket water heater, Jacket water centrifugal pump. |  |  |
| 3.3 | Instrument panel incorporating:  Voltmeter, Ammeter, Tachometer  Hours Run Meter, Water temperature gauge, Lubricating oil pressure gauge  Junction box with enclosed terminal strip |  |  |
| 3.4 | Governing:Mechanical/ hydro mechanical governor with 3% drop shall be provided |  |  |
| 3.5 | Cooling System An engine-mounted, heavy duty, closed circuit, tropicalised folded core radiator with blower type fan shall be sized to maintain safe operation at 50 deg. C maximum ambient temperature. The flexible connecting section between radiator and fixed exhaust louvres/intake louvres shall be sized and located to provide sufficient intake air for engine combustion and to provide required air flow through the radiator. |  |  |
| 3.6 | Air Intake System The air-intake system shall consist of the following:  - Pre cleaner  - Dry air cleaner with changeable filter  element.  - Service indicator to optimize changing of filter |  |  |
| 3.7 | Exhaust System The exhaust silencer shall be of the residential type including stainless steel flexible exhaust  pipe and fitting properly sized and installed according to IEC  Silencer shall be mounted so that its weight is not supported by the engine.  Exhaust pipe shall be sized so that it is sufficient to ensure that exhaust back pressure does not exceed the maximum limit as specified by IEC.  Exhaust pipe inside rooms/enclosures shall be lagged with heat resistant material and shall  be provided with aluminum cladding so as to have a surface temperature not exceeding  60°C. |  |  |
| 3.8 | Fuel System The fuel injection pump should be calibration free to ensure minimum down time.  Skid mounted eight (8) hours day tank with suitable drainage arrangement shall be provided.  Inlet and outlet fuel connections to engine should be through suitable flexible lines.  An engine mounted fuel filter, fuel pressure gauge and engine fuel priming pump shall be  provided. |  |  |
| 3.9 | Lubrication System The lubrication shall be forced feed equipped with a gear driven lube oil pump. The filters should be easily replaceable |  |  |
| 3.10 | Starting System A 24V D.C. electric starting system with positive engagement drive shall be furnished. Unit should be able to take up load in maximum 15 sec. |  |  |
| 3.11 | Batteries and Battery Charger Heavy duty lead-acid storage batteries for using in conjunction with the electric starting system shall be provided. Batteries shall be rated for minimum three start attempts. A battery rack and necessary cable and clamps shall be provided.  **The charger** shall employ transistor controlled magnetic amplifier circuits to provide continuous taper charging and shall maintain rated output voltage within +/- 1% from no load to full load with boost/float control. It should be rated at minimum 8A and be short-circuit proof to withstand the starting inrush of current. |  |  |
| 3.12 | Mounting System To achieve simplicity in foundation work, the set shall preferably be mounted on welded steel common bedplate with vibration isolators.  Flexible connections shall be provided to all ducts and pipes to minimize conduction of noise. |  |  |
| 4. | **Alternating Current (A.C.) Generators** (Alternators) |  |  |
| 4.1 | General Generators shall be brushless, single bearing salient pole, revolving field self regulating alternators of fabricated steel construction throughout, and shall comply fully with IEC 60034. They shall have a dynamically balanced rotating field, salient pole construction with heavy damper windings. The machine shall have an exciter and liberally rated silicon diodes assembly with a self contained excitation system with automatic voltage regulator (AVR) maximum  + 1% . It shall be screen protected and drip proof with a large terminal box suitable for the outgoing cabling.  The generators shall be star connected.  The generators shall be capable of maintaining their continuous maximum rated output when operating within ±5% rated voltage and at rated power factor.  All windings shall be tropicalised and suitably impregnated to withstand the site ambient conditions. |  |  |
| 4.2 | **Alternator**   * 3 phase system 230/400 volt * Rated prim power Min 250 KVA * Power factor min. 0.8 * 4 poles * Insulation Class H * Degree of protection IP 23 * Star connection * THD <= 2 % * 50 Hz * Efficiency > 92% |  |  |
| 4.3 | Stator The stator core shall consist of high permeability, low loss steel stamping, tightly clamped and securely located within the machine casing.  The windings shall consist of electrolytic copper conductors insulated throughout with class 'H' materials.  Both ends of each stator windings shall be brought out to terminal positions on the stator casing, the phase and terminal box being arranged for 3-phase and neutral connection. |  |  |
| 4.4 | Rotor The rotor shaft and hub shall be of forged steel preferably in one piece. The rotor poles shall be constructed of steel laminations, keyed and securely fixed to the rotor hub and fitted with interconnected damper windings to absorb the cyclic irregularity of engine.  The field winding shall consist of electrolytic copper conductors insulated throughout with class 'H' materials. Rotor should be precision wet layer wound to ensure complete encapsulation of rotor winding resulting in excellent environmental protection and protection against centrifugal forces. Rotor should withstand 124% over speed. |  |  |
| 4.5 | Excitation System The main exciter output shall be fed to their main rotor windings through a 3 phase, full wave bridge rectifier. The diode bridge shall be protected against surge and voltage transients caused, for example, by short-circuit or out of phase paralleling by a surge arrestor. The automatic voltage regulator shall have following minimum features:   1. Three phase sensing for optimum voltage control with unbalanced three phase loads. 2. Volts-per-hertz regulation for optimum block load voltage and frequency recovery. 3. Steady state voltage accuracy better than 0.5 % for precise control and quick recovery. 4. Voltage regulation, 1% from no load to full load (maximum). 5. External gain adjustment for constant voltage output across the operating range. 6. No moving parts should be there. All solid-state design for better reliability. 7. Voltage adjustment range - 20% to 10%. 8. Built in under voltage and under frequency protection for voltage regulator and generator. 9. Paralleling capability. 10. Telephone Interference Factor (TIF) less than 50. 11. EMI/RFI suppressions to commercial standards. |  |  |
| **5** | Self-Mounted Control Panel The diesel generator set mounted control panel shall be of a highly reliable design with protection against short circuit, reverse battery polarity and overvoltage transient surges. Meters installed should maintain their accuracy of 0.5 %. for voltmeters and ammeters from - 40 deg. C to 70 deg. C.  The generator shall have an electronic modular control panel with solid-state microprocessor based modules for engine control, AC metering and adequate environment protection.  The panel should be equipped with self-diagnostic capability to help trouble shooting for ease of maintenance.  Panel should have one engine control module to display engine operating information, system checking diagnostics, and fault shutdown using back lighted liquid crystal display (LCD) and light emitting diodes (LEDs). LCD display shall have sequential display of operating hours, engine rpm, battery volts, oil pressure and jacket water temperature. Any of these values shall be displayed by means of a selector switch. |  |  |
|  |  |  |  |
| 6 | **Dimension:** |  |  |
| 6.1 | Length: Max 3200 mm |  |  |
| 6.2 | Width: Max 1400 mm |  |  |
| 6.3 | Height: Max 1950 mm |  |  |
| 6.4 | Weight: Max 2100 Kg |  |  |
|  |  |  |  |
| **B** | **ACCESSORIES & CONSUMABLES** |  |  |
| 1 | Fast moving , oil filters , air filters , Fuel filters, and one V belt (2 pieces each) |  |  |
| **C** | **STANDARD REQUIREMENTS AND INSTRUCTIONS** |  |  |
| 1 | The item must be compliant to IEC 60204 , IEC 60034-1, IEC 60072-1, IEC 60072-2 ,  IEC 60085 standard.  Each unit must be tested according to the a.m. standards by the manufacturer laboratory or other laboratory. The test certificates will have to be provided in the contracting phase.  Primary and Secondary Insulation level must be according to the a.m. standard.  Permissible overload and duration in minutes (must be according to the a.m. standard. |  |  |
| 2 | Certification as per ISO 9001 and 14001 |  |  |
| 3 | The item offered shall be designed to operate normally under the conditions of the Implementing Entities country (Syria), i.e.: - Altitude above sea level: 1000 m (max.)  - Max. ambient temperature: 50 oC - Min. ambient temperature: - 10 oC  - Average annual temperature: 35 oC - Maximal temperature variation in one day : 20 oC  - Average maximum relative humidity: 80% at 30 degree C  - (Relative humidity in some site of Syria of up to 100% is possible) |  |  |
| 6 | The equipment supplied must be new with proper serial number as proof |  |  |
| 7 | A user's operations manual and installation manual in English and in Arabic must be supplied. |  |  |
| **D** | **OPTIONS** |  |  |
| 1 | NA |  |  |
| **E** | **NOTE** |  |  |
| 1 | Bidders may propose any product/system, which is equivalent or better than the requirements specified above. |  |  |
| 2 | Bidder shall furnish a clause-by-clause commentary on the requirements above in column 3 of this TSF. Bidder who comment with texts such as "Yes", "Complied", "Refer to catalogue", copying texts directly from the technical specifications form, leave any parameter line blank and/ or submit any text or content of this nature may be considered as NON-RESPONSIVE. |  |  |
| **F** | **Documentation** |  |  |
| 1 | Bidder should provide the following documents as relevant for bid submission and refer to these in column 4 of this TSF. |  |  |
| 2 | Brochures or catalogues |  |  |
| 3 | Technical data sheet |  |  |
| 4 | Copy of Test certificates as per IEC 60034-1 and other standards for Electrical machines carried out by the manufacturer in the last 12 months from the deadline for the submission of the bid. |  |  |
| **G** | Training on equipment supplied |  |  |
| 1 | Training must be provided in Arabic at your site for 3 technical staff for 5 day. This is an activity in common for all the DGs. If Your firm cannot provide in Arabic, interpretation will have to be provided. |  |  |
| 2 | The training must include the following elements and information: |  |  |
| 3 | Basic functioning and installation of the different Diesel Generators; |  |  |
| 4 | Equipment orientation / functions; |  |  |
| 5 | Simple aspects/steps in troubleshooting of errors; |  |  |
| 6 | Basic steps in the maintenance of the equipment; |  |  |
| 7 | Safety aspects of the equipment; |  |  |
| 8 | Equipment Operation Procedures (EOP) |  |  |

**LOT 2 – Distribution Transformers**

|  |  |  |  |
| --- | --- | --- | --- |
| TECHNICAL SPECIFICATION AND COMPATIBILITY TABLE | | | |
| 1 | 2 | 3 | 4 |
| No. | **ITEM NAME & DESCRIPTION**  Distribution Transformers (Pole Mounted Oil Type), 50 kVA, 20 ± 5%/0.4 kV | BIDDER’S OFFER | Ref. page no of Supporting Documents |
|  | **Item Number: 7** |  |  |
|  | Item description: This specification sets out the technical requirements for design, manufacturing, testing at works and supply of Pole Mounted Oil type distribution transformers having a voltage ratio of 20/0.4 kV 3-phase. The transformers are to be installed in the Syrian Electrical Network and shall comply with the latest versions of the relevant IEC standards and shall be suitable for use at the specified ambient conditions.  It is not the intent to specify completely herein all the details of the design and construction of the equipment. However, the equipment shall conform in all respects to high standards of engineering, design and workmanship and shall be capable of performing in continuous commercial operation up to the Bidder’s guarantee, in a manner acceptable to the purchaser, who will interpret the meanings of the drawings and the specification and shall have the power to reject any work or material which, in his judgment is not in accordance therewith. The offered equipment shall be complete with all components necessary for their effective and trouble free operation. Such, components be deemed to be within the scope of Bidder’s supply interceptive of whether those are specifically brought out in this specification and / or the commercial order or not. | Manufacturer:  Brand:  Type/Model:  Catalogue reference:  Country of Origin: |  |
|  | **APPLICATION** |  |  |
|  | To step down the voltage from  20 KV to 0.4 KV |  |  |
| **A** | **DESCRIPTION OF BASIC COMPONENTS WITH TECHNICAL SPECIFICATIONS** |  |  |
|  | **General** |  |  |
| 1 | Rated power: 50 KVA |  |  |
| 2 | Kind of installation: Outdoor Pole Mounted |  |  |
| 3 | Number of windings: two |  |  |
| 4 | Rated voltages: |  |  |
| 4.1 | Primary: 20 KV , |  |  |
| 4.2 | Secondary at no-load on principle tap: at least 0,4 KV |  |  |
| 5 | Number of phases: 3 |  |  |
| 6 | Vector group: Dyn 11 |  |  |
| 7 | Rated frequency: 50 Hz |  |  |
| 8 | Impedance voltage (120 0C) at full rated power: 4% |  |  |
| 9 | Cooling method ONAN |  |  |
|  | **Windings** |  |  |
| 9 | Connection: Delta –Star |  |  |
| 10 | Vector Group: Dyn11 |  |  |
| 11 | Material of windings: Electrolytic copper of a high conductivity |  |  |
| 12 | Temperature rise limits: |  |  |
| 12.1 | Oil /Top: ≤ 50 K |  |  |
| 12.2 | windings average: ≤ 55 K |  |  |
| 12.3 | windings hot spot : ≤ 68 K |  |  |
| 13 | Insulation: class A, in accordance with IEC 60085 |  |  |
|  |  |  |  |
|  | **Magnetic Core** |  |  |
| 14 | The magnetic core shall be made of laminations of non-ageing, cold-rolled, grain-oriented, silicon steel of high permeability without burrs. Each lamination shall be insulated with high quality insulation coating. |  |  |
| 15 | Noise level (LpA) at measuring distance of 1.0 m: Max 51 dB(A) |  |  |
|  |  |  |  |
|  | **Transformer Tank** |  |  |
| 16 | Type of tank: corrugated sheet steel hermetically sealed |  |  |
| 17 | The transformer tank shall be of the upper flange type with bolted cover and shall be equipped with corrugated sheet steel type radiators incorporated with the tank. Cooling fins shall be welded with round stiffening rods to prevent vibration during operation of the transformers. Transformer tanks shall be hermitically sealed and filled with nitrogen cushion above oil level  The tank, top cover, LV cable boxes etc. shall be connected with flexible links of suitable size for earthing of all parts of the transformer.  All transformer tanks and radiators with fins as above shall be subject to oil leak tests  Gaskets shall be oil resistant and made of such a material that no serious deterioration will occur under service conditions.  The transformers shall be equipped with appropriate pole-mounting facilities of an approved design, as well as a special facility to fix a set of lightning arresters on the top cover of the transformer near HV bushings without any disturbances to any other connection. The pole-mounting facilities shall be complete in every respect and shall be properly co-ordinated for each transformer type with the pole Bidder/Contractor. Rigid traverses shall be installed under the bottom as a mounting base.  Lifting lugs shall be provided on the cover, and two earthing terminals of adequate size shall be provided and installed diagonally at the bottom of the transformer tank.  The size and design of base channel shall be as per requirement and subject to the approval. |  |  |
|  |  |  |  |
| 18 | **Terminals** |  |  |
|  | Terminals shall be provided and installed as specified below:   1. Bushings   Severity class: “e” (very heavy) in accordance with IEC/TS 60815  Standard: IEC 60137,  Insulator Material: electrical grade porcelain  The bushings shall be arranged directly on the tank cover.  HV bushing connecting nuts/ bolts /washers/ rings/son the top shall be of non-magnetic (diamagnetic) material. The fixing nuts and bolts for HV/LV bushings to the tank shall be projected outward so that they can be tightened from outside to stop oil leak without opening the inspection box(es).   1. Terminal Boxes   Air-filled LV cable connecting boxes (IP 54) shall contain the LV bushings as above. They shall be mounted on one side of tank with horizontal bushing position.  The cable terminal boxes shall also be equipped with metal insulated outdoor type cable glands and shall accommodate the cable sealing ends. The cable glands on cable boxes shall be of non-magnetic (diamagnetic) material.  LV cable boxes and cable glands shall be designed for connecting of one 4-core cable of required size as per rating, on hole at the centre of cable box.  Cable boxes on transformer shall be complete with all necessary fittings, lugs of specific size, insulated outdoor type glands, clamp bonding strap(s) etc.  Formation of condensate in the termination boxes must be prevented by suitable ventilation of the cable boxes (subject for approval). |  |  |
|  | **Cooling** |  |  |
| 19 | The transformers shall be provided with a self-cooled type of cooling system (ONAN). |  |  |
|  |  |  |  |
|  | **OFF circuit Tap Changing Equipment** |  |  |
| 20 | Tapping range: ± 2x2.5% |  |  |
| 21 | Number of steps: 2 |  |  |
| 22 | Tapped winding: HV |  |  |
| 23 | Principal tapping at: 20 KV |  |  |
| 24 | Constant power at all taps: yes |  |  |
|  |  |  |  |
|  | **Transformer Oil** |  |  |
| 25 | The insulation oil shall be new inhibited naphthenic based mineral oil with anti-oxidant (phenolic) additives, and shall have properties such as to avoid formation of copper sulphide under continuous heavy loading conditions even without passivator additives.  It shall be hydro-treated, and shall have properties complying with latest version of IEC 60296, with aging properties meeting Special Applications as specified in this Standard. The flash point of the mineral oil shall be greater than 135°C.  With regard to more efficient detection of corrosive sulphur the oil shall have also passed a test in accordance with ASTM D 1275, method B, and IEC 62535. Both tests must be fulfilled.  The Bidder/Contractor is held responsible to prove the dryness and all other properties of the oil before utilization. |  |  |
|  |  |  |  |
|  | **Piping and Valves** |  |  |
| 25 | The piping required for the draining and filling of the transformers as well as the valves required for oil filling and draining are to be included. |  |  |
|  |  |  |  |
|  | **Losses** |  |  |
| 26 | Maximum permitted Losses at 120 0C, rated voltage, frequency, full site rated load and main tap |  |  |
| 26.1 | Load losses: Max 1.2 KW |  |  |
| 26.2 | No-load losses: Max 0.18 KW |  |  |
|  |  |  |  |
|  | **Name plate** |  |  |
| 27 | provision of engraved plate in accordance with IEC |  |  |
|  |  |  |  |
| 28 | **Dimension:** |  |  |
| 28.1 | Length: Max 1000 mm |  |  |
| 28.2 | Width: Max 600 mm |  |  |
| 28.3 | Height: Max 1050 mm |  |  |
|  |  |  |  |
| 29 | Weight: Max 600 Kg |  |  |
|  |  |  |  |
| **B** | **ACCESSORIES & CONSUMABLES** |  |  |
| 1 | 1 (one) dial type thermometer for top oil temperature with Maximum demand Indicator |  |  |
| 2 | 1 (one) spring-loaded pressure relief device on tank cover |  |  |
| 3 | 1 (one) oil level indicator of an approved design mounted in an easy accessible location. |  |  |
| **C** | **STANDARD REQUIREMENTS AND INSTRUCTIONS** |  |  |
| 1 | The item must be compliant to IEC 60076-11 standard.  Each unit must be tested according to the a.m. standard by the manufacturer laboratory or other laboratory. The test certificates will have to be provided in the contracting phase.  Primary and Secondary Insulation level must be according to the a.m. standard.  Permissible overload and duration in minutes (overload between 20% and 50% at 30, 40 and 50 °C) must be according to the a.m. standard. |  |  |
| 2 | Certification as per ISO 9001 and 14001 |  |  |
| 3 | The item offered shall be designed to operate normally under the conditions of the Implementing Entities country (Syria), i.e.: - Altitude above sea level: 1000 m (max.)  - Max. ambient temperature: 50 ºC - Min. ambient temperature: - 10 ºC  - Average annual temperature: 35 ºC - Maximal temperature variation in one day : 20 ºC  - Average maximum relative humidity: 80% at 30 ºC  - (Relative humidity in some site of Syria of up to 100% is possible) |  |  |
| 4 | Operating electric environment:  20 kV Distribution System   * 20 kV + 5% Three phases, three wires * Vector group of distribution transformer 20 kV/0.4 kV DYN11 * Maximum service voltage : 24 kV * Rated frequency : 50 Hz * Impulse withstand voltage level : 125 kV at 1.2/50 µs * Short circuit apparent power of the system 500 MVA * Fluctuations in supply voltage up to plus 10% to minus 15%. |  |  |
| 5 | The equipment supplied must be new with proper serial number as proof |  |  |
| 6 | A user's operations manual and installation manual in English and in Arabic must be supplied. |  |  |
| **D** | **OPTIONS** |  |  |
| 1 | *NA* |  |  |
| **E** | **NOTE** |  |  |
| 1 | Bidders may propose any product/system, which is equivalent or better than the requirements specified above. |  |  |
| 2 | Bidder shall furnish a clause-by-clause commentary on the requirements above in column 3 of this TSF. Bidder who comment with texts such as "Yes", "Complied", "Refer to catalogue", copying texts directly from the technical specifications form, leave any parameter line blank and/ or submit any text or content of this nature may be considered as NON-RESPONSIVE. |  |  |
| **F** | **Documentation** |  |  |
| 1 | Bidder should provide the following documents as relevant for bid submission and refer to these in column 4 of this TSF. |  |  |
| 2 | Brochures or catalogues |  |  |
| 3 | Technical data sheet |  |  |
| 4 | Copy of Test certificates as per IEC 60076 standard for oil type Distribution Transformers, 50 kVA, 20 ± 5%/0.4 kV carried out by the manufacturer in the last 12 months from the deadline for the submission of the bid. |  |  |
| **G** | **Training on equipment supplied** |  |  |
| 1 | Training must be provided in Arabic at your site for 3 technical staff for 5 day. This is an activity in common for all the transformers. If Your firm cannot provide in Arabic, interpretation will have to be provided. |  |  |
| 2 | The training must include the following elements and information: |  |  |
| 3 | Basic functioning and installation of the different transformers; |  |  |
| 4 | Equipment orientation / functions; |  |  |
| 5 | Simple aspects/steps in troubleshooting of errors; |  |  |
| 6 | Basic steps in the maintenance of the equipment; |  |  |
| 7 | Safety aspects of the equipment; |  |  |
| 8 | Equipment Operation Procedures (EOP) |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| TECHNICAL SPECIFICATION AND COMPATIBILITY TABLE | | | |
| 1 | 2 | 3 | 4 |
| No. | **ITEM NAME & DESCRIPTION**  Distribution Transformers (Pole Mounted Oil Type), 100 kVA, 20 ± 5%/0.4 kV | BIDDER’S OFFER | Ref. page no of Supporting Documents |
|  | **Item Number: 8** |  |  |
|  | Item description: This specification sets out the technical requirements for design, manufacturing, testing at works and supply of Pole Mounted Oil type distribution transformers having a voltage ratio of 20/0.4 kV 3-phase. The transformers are to be installed in the Syrian Electrical Network and shall comply with the latest versions of the relevant IEC standards and shall be suitable for use at the specified ambient conditions.  It is not the intent to specify completely herein all the details of the design and construction of the equipment. However, the equipment shall conform in all respects to high standards of engineering, design and workmanship and shall be capable of performing in continuous commercial operation up to the Bidder’s guarantee, in a manner acceptable to the purchaser, who will interpret the meanings of the drawings and the specification and shall have the power to reject any work or material which, in his judgment is not in accordance therewith. The offered equipment shall be complete with all components necessary for their effective and trouble free operation. Such, components be deemed to be within the scope of Bidder’s supply interceptive of whether those are specifically brought out in this specification and / or the commercial order or not. | Manufacturer:  Brand:  Type/Model:  Catalogue reference:  Country of Origin: |  |
|  | **APPLICATION** |  |  |
|  | To step down the voltage from  20 KV to 0.4 KV |  |  |
| **A** | **DESCRIPTION OF BASIC COMPONENTS WITH TECHNICAL SPECIFICATIONS** |  |  |
|  | **General** |  |  |
| 1 | Rated power: 100 KVA |  |  |
| 2 | Kind of installation: Outdoor Pole Mounted |  |  |
| 3 | Number of windings: two |  |  |
| 4 | Rated voltages: |  |  |
| 4.1 | Primary: 20 KV , |  |  |
| 4.2 | Secondary at no-load on principle tap: at least 0,4 KV |  |  |
| 5 | Number of phases: 3 |  |  |
| 6 | Vector group: Dyn 11 |  |  |
| 7 | Rated frequency: 50 Hz |  |  |
| 8 | Impedance voltage (120 0C) at full rated power: 4% |  |  |
| 9 | Cooling method ONAN |  |  |
|  | **Windings** |  |  |
| 9 | Connection: Delta –Star |  |  |
| 10 | Vector Group: Dyn11 |  |  |
| 11 | Material of windings: Electrolytic copper of a high conductivity |  |  |
| 12 | Temperature rise limits: |  |  |
| 12.1 | Oil /Top: ≤ 50 K |  |  |
| 12.2 | windings average: ≤ 55 K |  |  |
| 12.3 | windings hot spot : ≤ 68 K |  |  |
| 13 | Insulation: class A, in accordance with IEC 60085 |  |  |
|  |  |  |  |
|  | **Magnetic Core** |  |  |
| 14 | The magnetic core shall be made of laminations of non-ageing, cold-rolled, grain-oriented, silicon steel of high permeability without burrs. Each lamination shall be insulated with high quality insulation coating. |  |  |
| 15 | Noise level (LpA) at measuring distance of 1.0 m: Max 51 dB(A) |  |  |
|  |  |  |  |
|  | **Transformer Tank** |  |  |
| 16 | Type of tank: corrugated sheet steel hermetically sealed |  |  |
| 17 | The transformer tank shall be of the upper flange type with bolted cover and shall be equipped with corrugated sheet steel type radiators incorporated with the tank. Cooling fins shall be welded with round stiffening rods to prevent vibration during operation of the transformers. Transformer tanks shall be hermitically sealed and filled with nitrogen cushion above oil level  The tank, top cover, LV cable boxes etc. shall be connected with flexible links of suitable size for earthing of all parts of the transformer.  All transformer tanks and radiators with fins as above shall be subject to oil leak tests  Gaskets shall be oil resistant and made of such a material that no serious deterioration will occur under service conditions.  The transformers shall be equipped with appropriate pole-mounting facilities of an approved design, as well as a special facility to fix a set of lightning arresters on the top cover of the transformer near HV bushings without any disturbances to any other connection. The pole-mounting facilities shall be complete in every respect and shall be properly co-ordinated for each transformer type with the pole Bidder/Contractor. Rigid traverses shall be installed under the bottom as a mounting base.  Lifting lugs shall be provided on the cover, and two earthing terminals of adequate size shall be provided and installed diagonally at the bottom of the transformer tank.  The size and design of base channel shall be as per requirement and subject to the approval. |  |  |
|  |  |  |  |
| 18 | **Terminals** |  |  |
|  | Terminals shall be provided and installed as specified below:   1. Bushings   Severity class: “e” (very heavy) in accordance with IEC/TS 60815  Standard: IEC 60137,  Insulator Material: electrical grade porcelain  The bushings shall be arranged directly on the tank cover.  HV bushing connecting nuts/ bolts /washers/ rings/son the top shall be of non-magnetic (diamagnetic) material. The fixing nuts and bolts for HV/LV bushings to the tank shall be projected outward so that they can be tightened from outside to stop oil leak without opening the inspection box(es).   1. Terminal Boxes   Air-filled LV cable connecting boxes (IP 54) shall contain the LV bushings as above. They shall be mounted on one side of tank with horizontal bushing position.  The cable terminal boxes shall also be equipped with metal insulated outdoor type cable glands and shall accommodate the cable sealing ends. The cable glands on cable boxes shall be of non-magnetic (diamagnetic) material.  LV cable boxes and cable glands shall be designed for connecting of one 4-core cable of required size as per rating, on hole at the centre of cable box.  Cable boxes on transformer shall be complete with all necessary fittings, lugs of specific size, insulated outdoor type glands, clamp bonding strap(s) etc.  Formation of condensate in the termination boxes must be prevented by suitable ventilation of the cable boxes (subject for approval). |  |  |
|  | **Cooling** |  |  |
| 19 | The transformers shall be provided with a self-cooled type of cooling system (ONAN). |  |  |
|  |  |  |  |
|  | **OFF circuit Tap Changing Equipment** |  |  |
| 20 | Tapping range: ± 2x2.5% |  |  |
| 21 | Number of steps: 2 |  |  |
| 22 | Tapped winding: HV |  |  |
| 23 | Principal tapping at: 20 KV |  |  |
| 24 | Constant power at all taps: yes |  |  |
|  |  |  |  |
|  | **Transformer Oil** |  |  |
| 25 | The insulation oil shall be new inhibited naphthenic based mineral oil with anti-oxidant (phenolic) additives, and shall have properties such as to avoid formation of copper sulphide under continuous heavy loading conditions even without passivator additives.  It shall be hydro-treated, and shall have properties complying with latest version of IEC 60296, with aging properties meeting Special Applications as specified in this Standard. The flash point of the mineral oil shall be greater than 135°C.  With regard to more efficient detection of corrosive sulphur the oil shall have also passed a test in accordance with ASTM D 1275, method B, and IEC 62535. Both tests must be fulfilled.  The Bidder/Contractor is held responsible to prove the dryness and all other properties of the oil before utilization. |  |  |
|  |  |  |  |
|  | **Piping and Valves** |  |  |
| 25 | The piping required for the draining and filling of the transformers as well as the valves required for oil filling and draining are to be included. |  |  |
|  |  |  |  |
|  | **Losses** |  |  |
| 26 | Maximum permitted Losses at 120 0C, rated voltage, frequency, full site rated load and main tap |  |  |
| 26.1 | Load losses: Max 1.8 KW |  |  |
| 26.2 | No-load losses: Max 0.25 KW |  |  |
|  |  |  |  |
|  | **Name plate** |  |  |
| 27 | provision of engraved plate in accordance with IEC |  |  |
|  |  |  |  |
| 28 | **Dimension:** |  |  |
| 28.1 | Length: Max 1100 mm |  |  |
| 28.2 | Width: Max 900 mm |  |  |
| 28.3 | Height: Max 1200 mm |  |  |
|  |  |  |  |
| 29 | Weight: Max 900 Kg |  |  |
|  |  |  |  |
| **B** | **ACCESSORIES & CONSUMABLES** |  |  |
| 1 | 1 (one) dial type thermometer for top oil temperature with Maximum demand Indicator |  |  |
| 2 | 1 (one) spring-loaded pressure relief device on tank cover |  |  |
| 3 | 1 (one) oil level indicator of an approved design mounted in an easy accessible location. |  |  |
| **C** | **STANDARD REQUIREMENTS AND INSTRUCTIONS** |  |  |
| 1 | The item must be compliant to IEC 60076-11 standard.  Each unit must be tested according to the a.m. standard by the manufacturer laboratory or other laboratory. The test certificates will have to be provided in the contracting phase.  Primary and Secondary Insulation level must be according to the a.m. standard.  Permissible overload and duration in minutes (overload between 20% and 50% at 30, 40 and 50 °C) must be according to the a.m. standard. |  |  |
| 2 | Certification as per ISO 9001 and 14001 |  |  |
| 3 | The item offered shall be designed to operate normally under the conditions of the Implementing Entities country (Syria), i.e.: - Altitude above sea level: 1000 m (max.)  - Max. ambient temperature: 50 ºC - Min. ambient temperature: - 10 ºC  - Average annual temperature: 35 ºC - Maximal temperature variation in one day : 20 ºC  - Average maximum relative humidity: 80% at 30 ºC  - (Relative humidity in some site of Syria of up to 100% is possible) |  |  |
| 4 | Operating electric environment:  20 kV Distribution System   * 20 kV + 5% Three phases, three wires * Vector group of distribution transformer 20 kV/0.4 kV DYN11 * Maximum service voltage : 24 kV * Rated frequency : 50 Hz * Impulse withstand voltage level : 125 kV at 1.2/50 µs * Short circuit apparent power of the system 500 MVA * Fluctuations in supply voltage up to plus 10% to minus 15%. |  |  |
| 5 | The equipment supplied must be new with proper serial number as proof |  |  |
| 6 | A user's operations manual and installation manual in English and in Arabic must be supplied. |  |  |
| **D** | **OPTIONS** |  |  |
| 1 | *NA* |  |  |
| **E** | **NOTE** |  |  |
| 1 | Bidders may propose any product/system, which is equivalent or better than the requirements specified above. |  |  |
| 2 | Bidder shall furnish a clause-by-clause commentary on the requirements above in column 3 of this TSF. Bidder who comment with texts such as "Yes", "Complied", "Refer to catalogue", copying texts directly from the technical specifications form, leave any parameter line blank and/ or submit any text or content of this nature may be considered as NON-RESPONSIVE. |  |  |
| **F** | **Documentation** |  |  |
| 1 | Bidder should provide the following documents as relevant for bid submission and refer to these in column 4 of this TSF. |  |  |
| 2 | Brochures or catalogues |  |  |
| 3 | Technical data sheet |  |  |
| 4 | Copy of Test certificates as per IEC 60076 standard for oil type Distribution Transformers, 100 kVA, 20 ± 5%/0.4 kV carried out by the manufacturer in the last 12 months from the deadline for the submission of the bid. |  |  |
| **G** | **Training on equipment supplied** |  |  |
| 1 | Training must be provided in Arabic at your site for 3 technical staff for 5 day. This is an activity in common for all the transformers. If Your firm cannot provide in Arabic, interpretation will have to be provided. |  |  |
| 2 | The training must include the following elements and information: |  |  |
| 3 | Basic functioning and installation of the different transformers; |  |  |
| 4 | Equipment orientation / functions; |  |  |
| 5 | Simple aspects/steps in troubleshooting of errors; |  |  |
| 6 | Basic steps in the maintenance of the equipment; |  |  |
| 7 | Safety aspects of the equipment; |  |  |
| 8 | Equipment Operation Procedures (EOP) |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| TECHNICAL SPECIFICATION AND COMPATIBILITY TABLE | | | |
| 1 | 2 | 3 | 4 |
| No. | **ITEM NAME & DESCRIPTION**  Distribution Transformers (Pole Mounted Oil Type), 200 kVA, 20 ± 5%/0.4 kV | BIDDER’S OFFER | Ref. page no of Supporting Documents |
|  | **Item Number: 9** |  |  |
|  | Item description: This specification sets out the technical requirements for design, manufacturing, testing at works and supply of Pole Mounted Oil type distribution transformers having a voltage ratio of 20/0.4 kV 3-phase. The transformers are to be installed in the Syrian Electrical Network and shall comply with the latest versions of the relevant IEC standards and shall be suitable for use at the specified ambient conditions.  It is not the intent to specify completely herein all the details of the design and construction of the equipment. However, the equipment shall conform in all respects to high standards of engineering, design and workmanship and shall be capable of performing in continuous commercial operation up to the Bidder’s guarantee, in a manner acceptable to the purchaser, who will interpret the meanings of the drawings and the specification and shall have the power to reject any work or material which, in his judgment is not in accordance therewith. The offered equipment shall be complete with all components necessary for their effective and trouble free operation. Such, components be deemed to be within the scope of Bidder’s supply interceptive of whether those are specifically brought out in this specification and / or the commercial order or not. | Manufacturer:  Brand:  Type/Model:  Catalogue reference:  Country of Origin: |  |
|  | **APPLICATION** |  |  |
|  | To step down the voltage from  20 KV to 0.4 KV |  |  |
| **A** | **DESCRIPTION OF BASIC COMPONENTS WITH TECHNICAL SPECIFICATIONS** |  |  |
|  | **General** |  |  |
| 1 | Rated power: 200 KVA |  |  |
| 2 | Kind of installation: Outdoor Pole Mounted |  |  |
| 3 | Number of windings: two |  |  |
| 4 | Rated voltages: |  |  |
| 4.1 | Primary: 20 KV , |  |  |
| 4.2 | Secondary at no-load on principle tap: at least 0,4 KV |  |  |
| 5 | Number of phases: 3 |  |  |
| 6 | Vector group: Dyn 11 |  |  |
| 7 | Rated frequency: 50 Hz |  |  |
| 8 | Impedance voltage (120 0C) at full rated power: 4% |  |  |
| 9 | Cooling method ONAN |  |  |
|  | **Windings** |  |  |
| 9 | Connection: Delta –Star |  |  |
| 10 | Vector Group: Dyn11 |  |  |
| 11 | Material of windings: Electrolytic copper of a high conductivity |  |  |
| 12 | Temperature rise limits: |  |  |
| 12.1 | Oil /Top: ≤ 50 K |  |  |
| 12.2 | windings average: ≤ 55 K |  |  |
| 12.3 | windings hot spot : ≤ 68 K |  |  |
| 13 | Insulation: class A, in accordance with IEC 60085 |  |  |
|  |  |  |  |
|  | **Magnetic Core** |  |  |
| 14 | The magnetic core shall be made of laminations of non-ageing, cold-rolled, grain-oriented, silicon steel of high permeability without burrs. Each lamination shall be insulated with high quality insulation coating. |  |  |
| 15 | Noise level (LpA) at measuring distance of 1.0 m: Max 55 dB(A) |  |  |
|  |  |  |  |
|  | **Transformer Tank** |  |  |
| 16 | Type of tank: corrugated sheet steel hermetically sealed |  |  |
| 17 | The transformer tank shall be of the upper flange type with bolted cover and shall be equipped with corrugated sheet steel type radiators incorporated with the tank. Cooling fins shall be welded with round stiffening rods to prevent vibration during operation of the transformers. Transformer tanks shall be hermitically sealed and filled with nitrogen cushion above oil level  The tank, top cover, LV cable boxes etc. shall be connected with flexible links of suitable size for earthing of all parts of the transformer.  All transformer tanks and radiators with fins as above shall be subject to oil leak tests  Gaskets shall be oil resistant and made of such a material that no serious deterioration will occur under service conditions.  The transformers shall be equipped with appropriate pole-mounting facilities of an approved design, as well as a special facility to fix a set of lightning arresters on the top cover of the transformer near HV bushings without any disturbances to any other connection. The pole-mounting facilities shall be complete in every respect and shall be properly co-ordinated for each transformer type with the pole Bidder/Contractor. Rigid traverses shall be installed under the bottom as a mounting base.  Lifting lugs shall be provided on the cover, and two earthing terminals of adequate size shall be provided and installed diagonally at the bottom of the transformer tank.  The size and design of base channel shall be as per requirement and subject to the approval. |  |  |
|  |  |  |  |
| 18 | **Terminals** |  |  |
|  | Terminals shall be provided and installed as specified below:   1. Bushings   Severity class: “e” (very heavy) in accordance with IEC/TS 60815  Standard: IEC 60137,  Insulator Material: electrical grade porcelain  The bushings shall be arranged directly on the tank cover.  HV bushing connecting nuts/ bolts /washers/ rings/son the top shall be of non-magnetic (diamagnetic) material. The fixing nuts and bolts for HV/LV bushings to the tank shall be projected outward so that they can be tightened from outside to stop oil leak without opening the inspection box(es).   1. Terminal Boxes   Air-filled LV cable connecting boxes (IP 54) shall contain the LV bushings as above. They shall be mounted on one side of tank with horizontal bushing position.  The cable terminal boxes shall also be equipped with metal insulated outdoor type cable glands and shall accommodate the cable sealing ends. The cable glands on cable boxes shall be of non-magnetic (diamagnetic) material.  LV cable boxes and cable glands shall be designed for connecting of one 4-core cable of required size as per rating, on hole at the centre of cable box.  Cable boxes on transformer shall be complete with all necessary fittings, lugs of specific size, insulated outdoor type glands, clamp bonding strap(s) etc.  Formation of condensate in the termination boxes must be prevented by suitable ventilation of the cable boxes (subject for approval). |  |  |
|  | **Cooling** |  |  |
| 19 | The transformers shall be provided with a self-cooled type of cooling system (ONAN). |  |  |
|  |  |  |  |
|  | **OFF circuit Tap Changing Equipment** |  |  |
| 20 | Tapping range: ± 2x2.5% |  |  |
| 21 | Number of steps: 2 |  |  |
| 22 | Tapped winding: HV |  |  |
| 23 | Principal tapping at: 20 KV |  |  |
| 24 | Constant power at all taps: yes |  |  |
|  |  |  |  |
|  | **Transformer Oil** |  |  |
| 25 | The insulation oil shall be new inhibited naphthenic based mineral oil with anti-oxidant (phenolic) additives, and shall have properties such as to avoid formation of copper sulphide under continuous heavy loading conditions even without passivator additives.  It shall be hydro-treated, and shall have properties complying with latest version of IEC 60296, with aging properties meeting Special Applications as specified in this Standard. The flash point of the mineral oil shall be greater than 135°C.  With regard to more efficient detection of corrosive sulphur the oil shall have also passed a test in accordance with ASTM D 1275, method B, and IEC 62535. Both tests must be fulfilled.  The Bidder/Contractor is held responsible to prove the dryness and all other properties of the oil before utilization. |  |  |
|  |  |  |  |
|  | **Piping and Valves** |  |  |
| 25 | The piping required for the draining and filling of the transformers as well as the valves required for oil filling and draining are to be included. |  |  |
|  |  |  |  |
|  | **Losses** |  |  |
| 26 | Maximum permitted Losses at 120 0C, rated voltage, frequency, full site rated load and main tap |  |  |
| 26.1 | Load losses: Max 2.7 KW |  |  |
| 26.2 | No-load losses: Max 0.375 KW |  |  |
|  |  |  |  |
|  | **Name plate** |  |  |
| 27 | provision of engraved plate in accordance with IEC |  |  |
|  |  |  |  |
| 28 | **Dimension:** |  |  |
| 28.1 | Length: Max 1100 mm |  |  |
| 28.2 | Width: Max 900 mm |  |  |
| 28.3 | Height: Max 1250 mm |  |  |
|  |  |  |  |
| 29 | Weight: Max 1100 Kg |  |  |
|  |  |  |  |
| **B** | **ACCESSORIES & CONSUMABLES** |  |  |
| 1 | 1 (one) dial type thermometer for top oil temperature with Maximum demand Indicator |  |  |
| 2 | 1 (one) spring-loaded pressure relief device on tank cover |  |  |
| 3 | 1 (one) oil level indicator of an approved design mounted in an easy accessible location. |  |  |
| **C** | **STANDARD REQUIREMENTS AND INSTRUCTIONS** |  |  |
| 1 | The item must be compliant to IEC 60076-11 standard.  Each unit must be tested according to the a.m. standard by the manufacturer laboratory or other laboratory. The test certificates will have to be provided in the contracting phase.  Primary and Secondary Insulation level must be according to the a.m. standard.  Permissible overload and duration in minutes (overload between 20% and 50% at 30, 40 and 50 °C) must be according to the a.m. standard. |  |  |
| 2 | Certification as per ISO 9001 and 14001 |  |  |
| 3 | The item offered shall be designed to operate normally under the conditions of the Implementing Entities country (Syria), i.e.: - Altitude above sea level: 1000 m (max.)  - Max. ambient temperature: 50 ºC - Min. ambient temperature: - 10 ºC  - Average annual temperature: 35 ºC - Maximal temperature variation in one day : 20 ºC  - Average maximum relative humidity: 80% at 30 ºC  - (Relative humidity in some site of Syria of up to 100% is possible) |  |  |
| 4 | Operating electric environment:  20 kV Distribution System   * 20 kV + 5% Three phases, three wires * Vector group of distribution transformer 20 kV/0.4 kV DYN11 * Maximum service voltage : 24 kV * Rated frequency : 50 Hz * Impulse withstand voltage level : 125 kV at 1.2/50 µs * Short circuit apparent power of the system 500 MVA * Fluctuations in supply voltage up to plus 10% to minus 15%. |  |  |
| 5 | The equipment supplied must be new with proper serial number as proof |  |  |
| 6 | A user's operations manual and installation manual in English and in Arabic must be supplied. |  |  |
| **D** | **OPTIONS** |  |  |
| 1 | *NA* |  |  |
| **E** | **NOTE** |  |  |
| 1 | Bidders may propose any product/system, which is equivalent or better than the requirements specified above. |  |  |
| 2 | Bidder shall furnish a clause-by-clause commentary on the requirements above in column 3 of this TSF. Bidder who comment with texts such as "Yes", "Complied", "Refer to catalogue", copying texts directly from the technical specifications form, leave any parameter line blank and/ or submit any text or content of this nature may be considered as NON-RESPONSIVE. |  |  |
| **F** | **Documentation** |  |  |
| 1 | Bidder should provide the following documents as relevant for bid submission and refer to these in column 4 of this TSF. |  |  |
| 2 | Brochures or catalogues |  |  |
| 3 | Technical data sheet |  |  |
| 4 | Copy of Test certificates as per IEC 60076 standard for oil type Distribution Transformers, 200 KVA, 20 ± 5%/0.4 kV carried out by the manufacturer in the last 12 months from the deadline for the submission of the bid. |  |  |
| **G** | **Training on equipment supplied** |  |  |
| 1 | Training must be provided in Arabic at your site for 3 technical staff for 5 day. This is an activity in common for all the transformers. If Your firm cannot provide in Arabic, interpretation will have to be provided. |  |  |
| 2 | The training must include the following elements and information: |  |  |
| 3 | Basic functioning and installation of the different transformers; |  |  |
| 4 | Equipment orientation / functions; |  |  |
| 5 | Simple aspects/steps in troubleshooting of errors; |  |  |
| 6 | Basic steps in the maintenance of the equipment; |  |  |
| 7 | Safety aspects of the equipment; |  |  |
| 8 | Equipment Operation Procedures (EOP) |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| TECHNICAL SPECIFICATION AND COMPATIBILITY TABLE | | | |
| 1 | 2 | 3 | 4 |
| No. | **ITEM NAME & DESCRIPTION**  Three phase Oil type distribution Transformers 630 KVA, 20 / 0.4 Kv - indoor | BIDDER’S OFFER | Ref. page no of Supporting Documents |
|  | **Item Number: 10** |  |  |
|  | Item description: This specification sets out the technical requirements for design, manufacturing, testing at works and supply of oil type distribution transformers for Indoor applications having a voltage ratio of 20/0.4 kV , 3-phase. The transformers are to be installed in the Syrian Electrical Network and shall comply with the latest versions of the relevant IEC standards and shall be suitable for use at the specified ambient conditions.  The offered equipment shall be complete with all components necessary for their effective and trouble free operation. | Manufacturer:  Brand:  Type/Model:  Catalogue reference:  Country of Origin: |  |
|  | **APPLICATION** |  |  |
|  | To step down the voltage from  20 ± 5% KV to 0.4 KV |  |  |
| **A** | **DESCRIPTION OF BASIC COMPONENTS WITH TECHNICAL SPECIFICATIONS** |  |  |
|  | **General** |  |  |
| 1 | Rated power: 630 KVA |  |  |
| 2 | Kind of installation: indoor |  |  |
| 3 | Type of core: Core type |  |  |
| 4 | Number of windings: two |  |  |
| 5 | Rated voltages: |  |  |
| 5.1 | Primary: 20 KV |  |  |
| 5.2 | Secondary at no-load on principle tap: at least 0,4 KV |  |  |
| 6 | Number of phases: 3 |  |  |
| 7 | Vector group: DYN11 |  |  |
| 8 | Rated frequency: 50 Hz |  |  |
| 9 | Impedance voltage (75 ºC) at full rated power Uk % : 4 |  |  |
|  |  |  |  |
|  | **Windings** |  |  |
| 10 | Connection: Delta –Star |  |  |
| 11 | Material of windings: copper |  |  |
|  |  |  |  |
| 12 | **Maximum temperature rise above50 C ambient at rated power:** |  |  |
| 12.1 | Windings temperature rise average: ≤ 55 C |  |  |
| 12.2 | Top oil temperature rise: : ≤ 50  C |  |  |
| 12.3 | windings hot spot ≤ 65  C |  |  |
| 13 | Type and class of insulation:"A" |  |  |
| 14 | Noise level (LpA) at measuring distance of 1.0 m: Max 57 dB(A) |  |  |
|  |  |  |  |
|  | **Cooling** |  |  |
| 15 | The transformer itself shall be provided with a self-cooled type of cooling system (ONAN) |  |  |
|  |  |  |  |
|  | **Losses** |  |  |
| 16 | Maximum permitted Losses at 75 0C, rated voltage, frequency, full site rated load and main tap |  |  |
| 16.1 | Load losses: ≤ 5600 W |  |  |
| 16.2 | No-load losses: ≤ 940 W |  |  |
|  |  |  |  |
|  | **OFF circuit Tap Changing Equipment** |  |  |
| 17 | Tapping range: ± 2x2.5% |  |  |
| 18 | Number of steps: ± 2 |  |  |
| 19 | Tapped winding: HV |  |  |
| 20 | Principal tapping at: 20 KV |  |  |
| 21 | Constant power at all taps: yes |  |  |
| 22 | Auxiliary supply voltage: 400/230 VAC |  |  |
|  |  |  |  |
|  | **MV Surge Arrestors** |  |  |
| 23 | MV (Polymer) silicone housed surge arrester for distribution systems, (20-24) KV 10 kA Class 1 IEC 60099-4 |  |  |
|  |  |  |  |
| 24 | **Dimension:** |  |  |
| 24.1 | Length: Max 1650 mm |  |  |
| 24.2 | Width: Max 990 mm |  |  |
| 24.3 | Height: Max 1700 mm |  |  |
| 24.4 | Weight: Max 2000 Kg |  |  |
|  | **Housing** |  |  |
| 25 | No Housing |  |  |
|  |  |  |  |
|  | **Magnetic Core** |  |  |
| 26 | The magnetic core shall be made of laminations of non-ageing, cold-rolled, grain-oriented, silicon steel of high permeability without burrs. Each lamination shall be insulated with high quality insulation coating. |  |  |
|  | **Structure** |  |  |
| 27 | The structure shall consist of suitable C-profiles rigidly fixed onto the upper and lower yoke of the core. Four lifting lugs shall be provided on the upper frame as well as traverses under the bottom as a mounting base. Two earthing terminals of adequate size shall be provided and installed diagonally at the lower frame. |  |  |
|  |  |  |  |
|  | **Terminals** |  |  |
| 28 | The transformer housing shall be fitted with cable boxes. The cable bushings on both sides shall allow cable termination from the bottom.  The HV cable terminals shall have palm and holes suitable for terminating ≥120 (subject to short-circuit calculation results) mm2 3-core, copper conductor, XLPE insulated, tape and wire screened, double steel tape armoured and PVC served cable. The LV cable terminals shall be suitable for terminating 4 or 7 or 10 (depending on site) pieces 630 mm2, single-core, copper conductor.  The transformer shall be supplied complete with dry type heat shrinkable termination of approved make along with all the necessary cable lugs, grip type glands, etc. Cable support shall be provided in such a way as to relieve the strain on cable termination.  Cable glands shall be made of thermo-plastic material to allow one side earthing of the cable.  The HT cable box shall not be detachable and shall have bottom entry only.  The LT box shall have removable detachable gland plates so that entry can be made from the bottom as well as from the top and glands to facilitate removal of power cables without cutting the lugs.  The tap changing link provided on a separate mounting plate rather than on the cast resin MV winding so as to avoid any burning of the links and resin arising out of loose connection due to frequent changing of the links or due to human error. |  |  |
|  |  |  |  |
|  | **Protection** |  |  |
| 29 | Protection relay as follows:  The installation must have a protection relay to protect the transformer from:  - overload  - short-circuit (internal or external)  - earth fault  - overflow |  |  |
| 30 | To protect the transformer against overheating a temperature monitoring system (alarm and trip) shall be provided and to be connected to the LV windings by sensors to be selected according to the thermal class of insulation involved. A separate MCB shall be provided for the control supply. The control supply shall not be taken from secondary side of the transformer. |  |  |
|  |  |  |  |
|  | **Name plate** |  |  |
| 31 | Provision of engraved plate in accordance with IEC |  |  |
|  |  |  |  |
| **B** | **ACCESSORIES & CONSUMABLES** |  |  |
| 1 | *NA* |  |  |
| **C** | **STANDARD REQUIREMENTS AND INSTRUCTIONS** |  |  |
| 1 | The item must be compliant to IEC 60076 standard.  Each unit must be tested according to the a.m. standard by the manufacturer laboratory or other laboratory. The test certificates will have to be provided in the contracting phase.  Primary and Secondary Insulation level must be according to the a.m. standard.  Permissible overload and duration in minutes (overload between 20% and 50% at 30, 40 and 50 °C) must be according to the a.m. standard. |  |  |
| 2 | Certification as per ISO 9001 and 14001 |  |  |
| 3 | The item offered shall be designed to operate normally under the conditions of the Implementing Entities country (Syria), i.e.: - Altitude above sea level: 1000 m (max.)  - Max. ambient temperature: 50 ºC - Min. ambient temperature: - 10 ºC  - Average annual temperature: 35 ºC - Maximal temperature variation in one day : 20 ºC  - Average maximum relative humidity: 80% at 30 ºC  - (Relative humidity in some site of Syria of up to 100% is possible) |  |  |
| 4 | Operating electric environment:  20 kV Distribution System   * 20 kV + 5% Three phases, three wires * Vector group of distribution transformer 20 kV/0.4 kV DYN11 * Maximum service voltage : 24 kV * Rated frequency : 50 Hz * Impulse withstand voltage level : 125 kV at 1.2/50 µs * Short circuit apparent power of the system 500 MVA * Fluctuations in supply voltage up to plus 10% to minus 15%. |  |  |
| 5 | The equipment supplied must be new with proper serial number as proof |  |  |
| 6 | A user's operations manual and installation manual in English and in Arabic must be supplied. |  |  |
| **D** | **OPTIONS** |  |  |
| 1 | *NA* |  |  |
| **E** | **NOTE** |  |  |
| 1 | Bidders may propose any product/system, which is equivalent or better than the requirements specified above. |  |  |
| 2 | Bidder shall furnish a clause-by-clause commentary on the requirements above in column 3 of this TSF. Bidder who comment with texts such as "Yes", "Complied", "Refer to catalogue", copying texts directly from the technical specifications form, leave any parameter line blank and/ or submit any text or content of this nature may be considered as NON-RESPONSIVE. |  |  |
| **F** | **Documentation** |  |  |
| 1 | Bidder should provide the following documents as relevant for bid submission and refer to these in column 4 of this TSF. |  |  |
| 2 | Brochures or catalogues |  |  |
| 3 | Technical data sheet |  |  |
| 4 | Copy of Test certificates as per IEC 60076-11 standard for Distribution Transformers oil type, Indoor Installation), 400 KVA, 20/0.4 kV carried out by the manufacturer in the last 12 months from the deadline for the submission of the bid. |  |  |
| **G** | **Training on equipment supplied** |  |  |
| 1 | Training must be provided in Arabic at your site for 3 technical staff for 5 day. This is an activity in common for all the transformers. If Your firm cannot provide in Arabic, interpretation will have to be provided. |  |  |
| 2 | The training must include the following elements and information: |  |  |
| 3 | Basic functioning and installation of the different transformers; |  |  |
| 4 | Equipment orientation / functions; |  |  |
| 5 | Simple aspects/steps in troubleshooting of errors; |  |  |
| 6 | Basic steps in the maintenance of the equipment; |  |  |
| 7 | Safety aspects of the equipment; |  |  |
| 8 | Equipment Operation Procedures (EOP) |  |  |

**LOT 3 – Electrical Panels**

|  |  |  |  |
| --- | --- | --- | --- |
| TECHNICAL SPECIFICATION AND COMPATIBILITY TABLE | | | |
| 1 | 2 | 3 | 4 |
| No. | **ITEM NAME & DESCRIPTION**  control panel for Power Supply 50 kVA | BIDDER’S OFFER | Ref. page no of Supporting Documents |
|  | **Item number: 11** |  |  |
|  | Manufacturing control panel for Power Supply 50 kVA | Manufacturer:  Brand:  Type/Model:  Catalogue reference:  Country of Origin: |  |
|  | **APPLICATION** |  |  |
|  | **power supply for electrical loads by Conversion Circuit from Transformer or Generator set** |  |  |
| **A** | **DESCRIPTION OF BASIC COMPONENTS WITH TECHNICAL SPECIFICATIONS** |  |  |
|  | **General data** |  |  |
|  | |  |  |  | | --- | --- | --- | | QTY | Specification | Item | | 1 | 100 Ampere | Circuit Beaker | | 1 | 100 Ampere | Circuit Beaker | | 1 | 100 Ampere | Manuel Transfer Circuit breaker  1-0-2 | | 3 | Red | Pilot Lamp | | 3 | Yellow | Pilot Lamp | | 1 | Digital | Multimeter | | 3 | 100/5 | Current transformer | | 7 | 6 Amper | Mini circuit breaker | |  |  |
|  |  |  |  |
|  |  |  |  |
| **B** | **ACCESSORIES & CONSUMABLES** |  |  |
|  | Wires and appropriate connections |  |  |
|  |  |  |  |
| C | STANDARD REQUIREMENTS AND INSTRUCTIONS |  |  |
| 1 | The offered items shall be designed to operate normally under the conditions of the purchaser's country. The conditions include Power Supply, Climate, Temperature, Humidity, etc. also Must be composite materials in the electrical panel high quality |  |  |
| 2 | The Metal panel made from sheet thickness 1.5mm greased thermal paint |  |  |
|  |  |  |  |
| D | OPTIONS |  |  |
|  |  |  |  |
| E | NOTE |  |  |
| 1 | Bidders may propose any product/system, which is equivalent or better than the requirements specified above. |  |  |
|  |  |  |  |
| F | Documentation |  |  |
| 1 | Bidder should provide the following documents as relevant for bid submission and refer to these in column 4 of this TSF. |  |  |
| 2 | Brochures or catalogues |  |  |
| 3 | Technical data sheet |  |  |
|  |  |  |  |
| G | Training on equipment supplied |  |  |
| 1 | Not Applicable |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| TECHNICAL SPECIFICATION AND COMPATIBILITY TABLE | | | |
| 1 | 2 | 3 | 4 |
| No. | **ITEM NAME & DESCRIPTION**  control panel for Power Supply 100 kVA | BIDDER’S OFFER | Ref. page no of Supporting Documents |
|  | **Item number: 12** |  |  |
|  | Manufacturing control panel for Power Supply 100 kVA | Manufacturer:  Brand:  Type/Model:  Catalogue reference:  Country of Origin: |  |
|  | **APPLICATION** |  |  |
|  | **power supply for electrical loads by Conversion Circuit from Transformer or Generator set** |  |  |
| **A** | **DESCRIPTION OF BASIC COMPONENTS WITH TECHNICAL SPECIFICATIONS** |  |  |
|  | **General data** |  |  |
|  | |  |  |  | | --- | --- | --- | | QTY | Specification | Item | | 1 | 200 Ampere | Circuit Beaker | | 1 | 200 Ampere | Circuit Beaker | | 1 | 200 Ampere | Manuel Transfer Circuit breaker  1-0-2 | | 3 | Red | Pilot Lamp | | 3 | Yellow | Pilot Lamp | | 1 | Digital | Multimeter | | 3 | 250/5 | Current transformer | | 7 | 6 A | Mini circuit breaker | |  |  |
|  |  |  |  |
|  |  |  |  |
| **B** | **ACCESSORIES & CONSUMABLES** |  |  |
|  | Wires and appropriate connections |  |  |
|  |  |  |  |
| C | STANDARD REQUIREMENTS AND INSTRUCTIONS |  |  |
| 1 | The offered items shall be designed to operate normally under the conditions of the purchaser's country. The conditions include Power Supply, Climate, Temperature, Humidity, etc. also Must be composite materials in the electrical panel high quality |  |  |
| 2 | The Metal panel made from sheet thickness 1.5mm greased thermal paint |  |  |
|  |  |  |  |
| D | OPTIONS |  |  |
|  |  |  |  |
| E | NOTE |  |  |
| 1 | Bidders may propose any product/system, which is equivalent or better than the requirements specified above. |  |  |
|  |  |  |  |
| F | Documentation |  |  |
| 1 | Bidder should provide the following documents as relevant for bid submission and refer to these in column 4 of this TSF. |  |  |
| 2 | Brochures or catalogues |  |  |
| 3 | Technical data sheet |  |  |
|  |  |  |  |
| G | Training on equipment supplied |  |  |
| 1 | Not Applicable |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| TECHNICAL SPECIFICATION AND COMPATIBILITY TABLE | | | |
| 1 | 2 | 3 | 4 |
| No. | **ITEM NAME & DESCRIPTION**  control panel for Power Supply 200 kVA | BIDDER’S OFFER | Ref. page no of Supporting Documents |
|  | **Item number: 13** |  |  |
|  | Manufacturing control panel for Power Supply 200 kVA | Manufacturer:  Brand:  Type/Model:  Catalogue reference:  Country of Origin: |  |
|  | **APPLICATION** |  |  |
|  | **power supply for electrical loads by Conversion Circuit from Transformer or Generator set** |  |  |
| **A** | **DESCRIPTION OF BASIC COMPONENTS WITH TECHNICAL SPECIFICATIONS** |  |  |
|  | **General data** |  |  |
|  | |  |  |  | | --- | --- | --- | | QTY | Specification | Item | | 1 | 400 Ampere | Circuit Beaker | | 1 | 400 Ampere | Circuit Beaker | | 1 | 400 Ampere | Manuel Transfer Circuit breaker  1-0-2 | | 3 | Red | Pilot Lamp | | 3 | Yellow | Pilot Lamp | | 1 | Digital | Multimeter | | 3 | 400/5 | Current transformer | | 7 | 6 A | Mini circuit breaker | |  |  |
|  |  |  |  |
|  |  |  |  |
| **B** | **ACCESSORIES & CONSUMABLES** |  |  |
|  | Wires and appropriate connections |  |  |
|  |  |  |  |
| C | STANDARD REQUIREMENTS AND INSTRUCTIONS |  |  |
| 1 | The offered items shall be designed to operate normally under the conditions of the purchaser's country. The conditions include Power Supply, Climate, Temperature, Humidity, etc. also Must be composite materials in the electrical panel high quality |  |  |
| 2 | The Metal panel made from sheet thickness 1.5mm greased thermal paint |  |  |
|  |  |  |  |
| D | OPTIONS |  |  |
|  |  |  |  |
| E | NOTE |  |  |
| 1 | Bidders may propose any product/system, which is equivalent or better than the requirements specified above. |  |  |
|  |  |  |  |
| F | Documentation |  |  |
| 1 | Bidder should provide the following documents as relevant for bid submission and refer to these in column 4 of this TSF. |  |  |
| 2 | Brochures or catalogues |  |  |
| 3 | Technical data sheet |  |  |
|  |  |  |  |
| G | Training on equipment supplied |  |  |
| 1 | Not Applicable |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| TECHNICAL SPECIFICATION AND COMPATIBILITY TABLE | | | |
| 1 | 2 | 3 | 4 |
| No. | **ITEM NAME & DESCRIPTION**  control panel for Power Supply 630 kVA | BIDDER’S OFFER | Ref. page no of Supporting Documents |
|  | **Item number: 14** |  |  |
|  | Manufacturing control panel for Power Supply 630 kVA | Manufacturer:  Brand:  Type/Model:  Catalogue reference:  Country of Origin: |  |
|  | **APPLICATION** |  |  |
|  | **power supply for electrical loads by Conversion Circuit from Transformer or Generator set** |  |  |
| **A** | **DESCRIPTION OF BASIC COMPONENTS WITH TECHNICAL SPECIFICATIONS** |  |  |
|  | **General data** |  |  |
|  | |  |  |  | | --- | --- | --- | | QTY | Specification | Item | | 1 | 1250 Ampere | Circuit Beaker | | 1 | 1250 Ampere | Circuit Beaker | | 1 | 1250 Ampere | Manuel Transfer Circuit breaker  1-0-2 | | 3 | Red | Pilot Lamp | | 3 | Yellow | Pilot Lamp | | 1 | Digital | Multimeter | | 3 | 1250/5 | Current transformer | | 7 | 6 A | Mini circuit breaker | |  |  |
|  |  |  |  |
|  |  |  |  |
| **B** | **ACCESSORIES & CONSUMABLES** |  |  |
|  | Wires and appropriate connections |  |  |
|  |  |  |  |
| C | STANDARD REQUIREMENTS AND INSTRUCTIONS |  |  |
| 1 | The offered items shall be designed to operate normally under the conditions of the purchaser's country. The conditions include Power Supply, Climate, Temperature, Humidity, etc. also Must be composite materials in the electrical panel high quality |  |  |
| 2 | The Metal panel made from sheet thickness 1.5mm greased thermal paint |  |  |
|  |  |  |  |
| D | OPTIONS |  |  |
|  |  |  |  |
| E | NOTE |  |  |
| 1 | Bidders may propose any product/system, which is equivalent or better than the requirements specified above. |  |  |
|  |  |  |  |
| F | Documentation |  |  |
| 1 | Bidder should provide the following documents as relevant for bid submission and refer to these in column 4 of this TSF. |  |  |
| 2 | Brochures or catalogues |  |  |
| 3 | Technical data sheet |  |  |
|  |  |  |  |
| G | Training on equipment supplied |  |  |
| 1 | Not Applicable |  |  |

**LOT 4 – Cables**

|  |  |  |  |
| --- | --- | --- | --- |
| TECHNICAL SPECIFICATION AND COMPATIBILITY TABLE | | | |
| 1 | 2 | 3 | 4 |
| No. | **ITEM NAME & DESCRIPTION**  **Cable 3x4 mm2 NYY** | BIDDER’S OFFER | Ref. page no of Supporting Documents |
|  | **Item number: 15** |  |  |
|  | Cable copper 3x4 mm2 for usage in 0.4KV low voltage network in Syria, according to IEC standard 60502-1 power cables, plus IEC 60228. | Manufacturer:  Brand:  Type/Model:  Catalogue reference:  Country of Origin: |  |
|  | **APPLICATION** |  |  |
|  | Is used to connect the power supply of Horizontal pumps |  |  |
| **A** | **DESCRIPTION OF BASIC COMPONENTS WITH TECHNICAL SPECIFICATIONS** |  |  |
|  | **General data** |  |  |
| 1 | Type: compacted stranded |  |  |
| 2 | Material: annealed copper wires (99,99% purity and not less than 100% conductivity.  The conductor shall be clean, smooth and free from foreign particles and defects. |  |  |
| 3 | Nominal cross section: 3 x 4 mm2 |  |  |
| 4 | Polyvinyl chloride |  |  |
| 5 | Inner sheath : PVC |  |  |
| 6 | Unarmed |  |  |
| 7. | Outer sheath: PVC |  |  |
| 7.1 | Fire retardant |  |  |
| 7.2 | Length marking at every meter interval |  |  |
| 7.3 | Color: Black |  |  |
|  | **Electrical data** |  |  |
| 8 | Rated Voltage (Uo/U) 0.6/1 KV |  |  |
| 9 | Highest System Voltage (Umax): 1.2 KV |  |  |
| 10 | Frequency: 50 Hz |  |  |
| 11 | Power frequency withstand  voltage (4 x Uo): Minimum 2.4 KV/4 hours |  |  |
| 12 | Minimum installation temperature: ≥-10°C |  |  |
| 13 | Max. conductor temperature in service:  ≥90°C |  |  |
|  |  |  |  |
| **B** | **ACCESSORIES & CONSUMABLES** |  |  |
| 1 | *NA* |  |  |
| **C** | **STANDARD REQUIREMENTS AND INSTRUCTIONS** |  |  |
| 1 | For all Tests; Sample Tests, Routine Tests and Tests after installation, reference shall generally be made to the relevant IEC 60502 and IEC 60332Standards. |  |  |
| 2 | The item offered shall be designed to operate normally under the conditions of the Implementing Entities country (Syria), i.e.:  - Altitude above sea level: 1.000 m (max.)  - Max. ambient temperature: 50°C - Min. ambient temperature: - 10°C  - Average annual temperature: 35°C - Maximal temperature variation in one day  20 °C  - Average maximum relative humidity: 80% at 30 degree C  - (Relative humidity in some site of Syria of up to 100% is possible) |  |  |
| 3 | Operating electric environment:  20 kV Distribution System   * 20 kV + 5% Three phases, three wires * Vector group of distribution transformer 20 kV/0.4 kV DYN11 * Maximum service voltage : 24 kV * Rated frequency : 50 Hz * Impulse withstand voltage level : 125 kV at 1.2/50 µs * Short circuit apparent power of the system 500 MVA * Fluctuations in supply voltage up to plus 10% to minus 15%. |  |  |
| 4 | The equipment supplied must be new with proper serial number as proof |  |  |
| 5 | User's instructions n English and in Arabic must be supplied. |  |  |
| **D** | **OPTIONS** |  |  |
| 1 | *NA* |  |  |
| **E** | **NOTE** |  |  |
| 1 | Bidders may propose any product/system, which is equivalent or better than the requirements specified above. |  |  |
| 2 | On the cable’s outer sheath the following shall be embossed at one meter interval starting from 000 against each drum length:  • ELECTRIC CABLE 600/1000V  • Cable size  • Manufacturers name  • Year of manufacturing  • Owners name as  ‘PROPERTY OF SRT FUND’  • Sequential length marking at  every meter interval starting from  000. |  |  |
| 3 | The marking on the drum must be clear and written on two sides of the drum with inerasable materials also metal label in both sides of drum including all the information. It is important to mark each drum, clearly by the following:  • contract number;  • the purchaser;  • delivery number, shipment  number;  • manufacturing date;  • name of manufacturer;  • kind of materials;  • quantities contained length;  • main technical specification ;  • cross section;  • gross weight, net weight; |  |  |
| 4 | Bidder shall furnish a clause-by-clause commentary on the requirements above in column 3 of this TSF. Bidder who comment with texts such as "Yes", "Complied", "Refer to catalogue", copying texts directly from the technical specifications form, leave any parameter line blank and/ or submit any text or content of this nature may be considered as NON-RESPONSIVE. |  |  |
| **F** | **Documentation** |  |  |
| 1 | Bidder should provide the following documents as relevant for bid submission and refer to these in column 4 of this TSF. |  |  |
| 2 | Brochures or catalogues |  |  |
| 3 | Technical data sheet |  |  |
| 4 | Copy of Test certificates as per IEC carried out by the manufacturer in the last 12 months from the deadline for the submission of the bid. |  |  |
| 5 | Documentation on relevant quality assurance systems in place |  |  |
| **G** | **Training on equipment supplied** |  |  |
| 1 | NA |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| TECHNICAL SPECIFICATION AND COMPATIBILITY TABLE | | | |
| 1 | 2 | 3 | 4 |
| No. | **ITEM NAME & DESCRIPTION**  **Cable 3x10 mm2 NYY** | BIDDER’S OFFER | Ref. page no of Supporting Documents |
|  | **Item number: 16** |  |  |
|  | Cable copper 3x10 mm2 for usage in 0.4KV low voltage network in Syria, according to IEC standard 60502-1 power cables, plus IEC 60228. | Manufacturer:  Brand:  Type/Model:  Catalogue reference:  Country of Origin: |  |
|  | **APPLICATION** |  |  |
|  | Is used to connect the power supply of Horizontal pumps |  |  |
| **A** | **DESCRIPTION OF BASIC COMPONENTS WITH TECHNICAL SPECIFICATIONS** |  |  |
|  | **General data** |  |  |
| 1 | Type: compacted stranded |  |  |
| 2 | Material: annealed copper wires (99,99% purity and not less than 100% conductivity.  The conductor shall be clean, smooth and free from foreign particles and defects. |  |  |
| 3 | Nominal cross section: 3 x 10 mm2 |  |  |
| 4 | Polyvinyl chloride |  |  |
| 5 | Inner sheath : PVC |  |  |
| 6 | Unarmed |  |  |
| 7. | Outer sheath: PVC |  |  |
| 7.1 | Fire retardant |  |  |
| 7.2 | Length marking at every meter interval |  |  |
| 7.3 | Color: Black |  |  |
|  | **Electrical data** |  |  |
| 8 | Rated Voltage (Uo/U) 0.6/1 KV |  |  |
| 9 | Highest System Voltage (Umax): 1.2 KV |  |  |
| 10 | Frequency: 50 Hz |  |  |
| 11 | Power frequency withstand  voltage (4 x Uo): Minimum 2.4 KV/4 hours |  |  |
| 12 | Minimum installation temperature: ≥-10°C |  |  |
| 13 | Max. conductor temperature in service:  ≥90°C |  |  |
|  |  |  |  |
| **B** | **ACCESSORIES & CONSUMABLES** |  |  |
| 1 | *NA* |  |  |
| **C** | **STANDARD REQUIREMENTS AND INSTRUCTIONS** |  |  |
| 1 | For all Tests; Sample Tests, Routine Tests and Tests after installation, reference shall generally be made to the relevant IEC 60502 and IEC 60332Standards. |  |  |
| 2 | The item offered shall be designed to operate normally under the conditions of the Implementing Entities country (Syria), i.e.:  - Altitude above sea level: 1.000 m (max.)  - Max. ambient temperature: 50°C - Min. ambient temperature: - 10°C  - Average annual temperature: 35°C - Maximal temperature variation in one day  20 °C  - Average maximum relative humidity: 80% at 30 degree C  - (Relative humidity in some site of Syria of up to 100% is possible) |  |  |
| 3 | Operating electric environment:  20 kV Distribution System   * 20 kV + 5% Three phases, three wires * Vector group of distribution transformer 20 kV/0.4 kV DYN11 * Maximum service voltage : 24 kV * Rated frequency : 50 Hz * Impulse withstand voltage level : 125 kV at 1.2/50 µs * Short circuit apparent power of the system 500 MVA * Fluctuations in supply voltage up to plus 10% to minus 15%. |  |  |
| 4 | The equipment supplied must be new with proper serial number as proof |  |  |
| 5 | User's instructions n English and in Arabic must be supplied. |  |  |
| **D** | **OPTIONS** |  |  |
| 1 | *NA* |  |  |
| **E** | **NOTE** |  |  |
| 1 | Bidders may propose any product/system, which is equivalent or better than the requirements specified above. |  |  |
| 2 | On the cable’s outer sheath the following shall be embossed at one meter interval starting from 000 against each drum length:  • ELECTRIC CABLE 600/1000V  • Cable size  • Manufacturers name  • Year of manufacturing  • Owners name as  ‘PROPERTY OF SRT FUND’  • Sequential length marking at  every meter interval starting from  000. |  |  |
| 3 | The marking on the drum must be clear and written on two sides of the drum with inerasable materials also metal label in both sides of drum including all the information. It is important to mark each drum, clearly by the following:  • contract number;  • the purchaser;  • delivery number, shipment  number;  • manufacturing date;  • name of manufacturer;  • kind of materials;  • quantities contained length;  • main technical specification ;  • cross section;  • gross weight, net weight; |  |  |
| 4 | Bidder shall furnish a clause-by-clause commentary on the requirements above in column 3 of this TSF. Bidder who comment with texts such as "Yes", "Complied", "Refer to catalogue", copying texts directly from the technical specifications form, leave any parameter line blank and/ or submit any text or content of this nature may be considered as NON-RESPONSIVE. |  |  |
| **F** | **Documentation** |  |  |
| 1 | Bidder should provide the following documents as relevant for bid submission and refer to these in column 4 of this TSF. |  |  |
| 2 | Brochures or catalogues |  |  |
| 3 | Technical data sheet |  |  |
| 4 | Copy of Test certificates as per IEC carried out by the manufacturer in the last 12 months from the deadline for the submission of the bid. |  |  |
| 5 | Documentation on relevant quality assurance systems in place |  |  |
| **G** | **Training on equipment supplied** |  |  |
| 1 | NA |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| TECHNICAL SPECIFICATION AND COMPATIBILITY TABLE | | | |
| 1 | 2 | 3 | 4 |
| No. | **ITEM NAME & DESCRIPTION**  **Cable 3x25 mm2 NYY** | BIDDER’S OFFER | Ref. page no of Supporting Documents |
|  | **Item number: 17** |  |  |
|  | Cable copper 3x25 mm2 for usage in 0.4KV low voltage network in Syria, according to IEC standard 60502-1 power cables, plus IEC 60228. | Manufacturer:  Brand:  Type/Model:  Catalogue reference:  Country of Origin: |  |
|  | **APPLICATION** |  |  |
|  | Is used to connect the power supply of Horizontal pumps |  |  |
| **A** | **DESCRIPTION OF BASIC COMPONENTS WITH TECHNICAL SPECIFICATIONS** |  |  |
|  | **General data** |  |  |
| 1 | Type: compacted stranded |  |  |
| 2 | Material: annealed copper wires (99,99% purity and not less than 100% conductivity.  The conductor shall be clean, smooth and free from foreign particles and defects. |  |  |
| 3 | Nominal cross section: 3 x 25 mm2 |  |  |
| 4 | Polyvinyl chloride |  |  |
| 5 | Inner sheath : PVC |  |  |
| 6 | Unarmed |  |  |
| 7. | Outer sheath: PVC |  |  |
| 7.1 | Fire retardant |  |  |
| 7.2 | Length marking at every meter interval |  |  |
| 7.3 | Color: Black |  |  |
|  | **Electrical data** |  |  |
| 8 | Rated Voltage (Uo/U) 0.6/1 KV |  |  |
| 9 | Highest System Voltage (Umax): 1.2 KV |  |  |
| 10 | Frequency: 50 Hz |  |  |
| 11 | Power frequency withstand  voltage (4 x Uo): Minimum 2.4 KV/4 hours |  |  |
| 12 | Minimum installation temperature: ≥-10°C |  |  |
| 13 | Max. conductor temperature in service:  ≥90°C |  |  |
|  |  |  |  |
| **B** | **ACCESSORIES & CONSUMABLES** |  |  |
| 1 | *NA* |  |  |
| **C** | **STANDARD REQUIREMENTS AND INSTRUCTIONS** |  |  |
| 1 | For all Tests; Sample Tests, Routine Tests and Tests after installation, reference shall generally be made to the relevant IEC 60502 and IEC 60332Standards. |  |  |
| 2 | The item offered shall be designed to operate normally under the conditions of the Implementing Entities country (Syria), i.e.:  - Altitude above sea level: 1.000 m (max.)  - Max. ambient temperature: 50°C - Min. ambient temperature: - 10°C  - Average annual temperature: 35°C - Maximal temperature variation in one day  20 °C  - Average maximum relative humidity: 80% at 30 degree C  - (Relative humidity in some site of Syria of up to 100% is possible) |  |  |
| 3 | Operating electric environment:  20 kV Distribution System   * 20 kV + 5% Three phases, three wires * Vector group of distribution transformer 20 kV/0.4 kV DYN11 * Maximum service voltage : 24 kV * Rated frequency : 50 Hz * Impulse withstand voltage level : 125 kV at 1.2/50 µs * Short circuit apparent power of the system 500 MVA * Fluctuations in supply voltage up to plus 10% to minus 15%. |  |  |
| 4 | The equipment supplied must be new with proper serial number as proof |  |  |
| 5 | User's instructions n English and in Arabic must be supplied. |  |  |
| **D** | **OPTIONS** |  |  |
| 1 | *NA* |  |  |
| **E** | **NOTE** |  |  |
| 1 | Bidders may propose any product/system, which is equivalent or better than the requirements specified above. |  |  |
| 2 | On the cable’s outer sheath the following shall be embossed at one meter interval starting from 000 against each drum length:  • ELECTRIC CABLE 600/1000V  • Cable size  • Manufacturers name  • Year of manufacturing  • Owners name as  ‘PROPERTY OF SRT FUND’  • Sequential length marking at  every meter interval starting from  000. |  |  |
| 3 | The marking on the drum must be clear and written on two sides of the drum with inerasable materials also metal label in both sides of drum including all the information. It is important to mark each drum, clearly by the following:  • contract number;  • the purchaser;  • delivery number, shipment  number;  • manufacturing date;  • name of manufacturer;  • kind of materials;  • quantities contained length;  • main technical specification ;  • cross section;  • gross weight, net weight; |  |  |
| 4 | Bidder shall furnish a clause-by-clause commentary on the requirements above in column 3 of this TSF. Bidder who comment with texts such as "Yes", "Complied", "Refer to catalogue", copying texts directly from the technical specifications form, leave any parameter line blank and/ or submit any text or content of this nature may be considered as NON-RESPONSIVE. |  |  |
| **F** | **Documentation** |  |  |
| 1 | Bidder should provide the following documents as relevant for bid submission and refer to these in column 4 of this TSF. |  |  |
| 2 | Brochures or catalogues |  |  |
| 3 | Technical data sheet |  |  |
| 4 | Copy of Test certificates as per IEC carried out by the manufacturer in the last 12 months from the deadline for the submission of the bid. |  |  |
| 5 | Documentation on relevant quality assurance systems in place |  |  |
| **G** | **Training on equipment supplied** |  |  |
| 1 | NA |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| TECHNICAL SPECIFICATION AND COMPATIBILITY TABLE | | | |
| 1 | 2 | 3 | 4 |
| No. | **ITEM NAME & DESCRIPTION**  **Cable 3x1.5 mm2 NYY** | BIDDER’S OFFER | Ref. page no of Supporting Documents |
|  | **Item number: 18** |  |  |
|  | Cable copper 3x1.5 mm2 for usage in 0.4KV low voltage network in Syria, according to IEC standard 60502-1 power cables, plus IEC 60228. | Manufacturer:  Brand:  Type/Model:  Catalogue reference:  Country of Origin: |  |
|  | **APPLICATION** |  |  |
|  | Is used to connect the power supply for Water level Relay in the submersible pumps |  |  |
| **A** | **DESCRIPTION OF BASIC COMPONENTS WITH TECHNICAL SPECIFICATIONS** |  |  |
|  | **General data** |  |  |
| 1 | Type: compacted stranded |  |  |
| 2 | Material: annealed copper wires (99,99% purity and not less than 100% conductivity.  The conductor shall be clean, smooth and free from foreign particles and defects. |  |  |
| 3 | Nominal cross section: 3 x 1.5 mm2 |  |  |
| 4 | Polyvinyl chloride |  |  |
| 5 | Inner sheath : PVC |  |  |
| 6 | Unarmed |  |  |
| 7. | Outer sheath: PVC |  |  |
| 7.1 | Fire retardant |  |  |
| 7.2 | Length marking at every meter interval |  |  |
| 7.3 | Color: Black |  |  |
|  | **Electrical data** |  |  |
| 8 | Rated Voltage (Uo/U) 0.6/1 KV |  |  |
| 9 | Highest System Voltage (Umax): 1.2 KV |  |  |
| 10 | Frequency: 50 Hz |  |  |
| 11 | Power frequency withstand  voltage (4 x Uo): Minimum 2.4 KV/4 hours |  |  |
| 12 | Minimum installation temperature: ≥-10°C |  |  |
| 13 | Max. conductor temperature in service:  ≥90°C |  |  |
|  |  |  |  |
| **B** | **ACCESSORIES & CONSUMABLES** |  |  |
| 1 | *NA* |  |  |
| **C** | **STANDARD REQUIREMENTS AND INSTRUCTIONS** |  |  |
| 1 | For all Tests; Sample Tests, Routine Tests and Tests after installation, reference shall generally be made to the relevant IEC 60502 and IEC 60332Standards. |  |  |
| 2 | The item offered shall be designed to operate normally under the conditions of the Implementing Entities country (Syria), i.e.:  - Altitude above sea level: 1.000 m (max.)  - Max. ambient temperature: 50°C - Min. ambient temperature: - 10°C  - Average annual temperature: 35°C - Maximal temperature variation in one day  20 °C  - Average maximum relative humidity: 80% at 30 degree C  - (Relative humidity in some site of Syria of up to 100% is possible) |  |  |
| 3 | Operating electric environment:  20 kV Distribution System   * 20 kV + 5% Three phases, three wires * Vector group of distribution transformer 20 kV/0.4 kV DYN11 * Maximum service voltage : 24 kV * Rated frequency : 50 Hz * Impulse withstand voltage level : 125 kV at 1.2/50 µs * Short circuit apparent power of the system 500 MVA * Fluctuations in supply voltage up to plus 10% to minus 15%. |  |  |
| 4 | The equipment supplied must be new with proper serial number as proof |  |  |
| 5 | User's instructions n English and in Arabic must be supplied. |  |  |
| **D** | **OPTIONS** |  |  |
| 1 | *NA* |  |  |
| **E** | **NOTE** |  |  |
| 1 | Bidders may propose any product/system, which is equivalent or better than the requirements specified above. |  |  |
| 2 | On the cable’s outer sheath the following shall be embossed at one meter interval starting from 000 against each drum length:  • ELECTRIC CABLE 600/1000V  • Cable size  • Manufacturers name  • Year of manufacturing  • Owners name as  ‘PROPERTY OF SRT FUND’  • Sequential length marking at  every meter interval starting from  000. |  |  |
| 3 | The marking on the drum must be clear and written on two sides of the drum with inerasable materials also metal label in both sides of drum including all the information. It is important to mark each drum, clearly by the following:  • contract number;  • the purchaser;  • delivery number, shipment  number;  • manufacturing date;  • name of manufacturer;  • kind of materials;  • quantities contained length;  • main technical specification ;  • cross section;  • gross weight, net weight; |  |  |
| 4 | Bidder shall furnish a clause-by-clause commentary on the requirements above in column 3 of this TSF. Bidder who comment with texts such as "Yes", "Complied", "Refer to catalogue", copying texts directly from the technical specifications form, leave any parameter line blank and/ or submit any text or content of this nature may be considered as NON-RESPONSIVE. |  |  |
| **F** | **Documentation** |  |  |
| 1 | Bidder should provide the following documents as relevant for bid submission and refer to these in column 4 of this TSF. |  |  |
| 2 | Brochures or catalogues |  |  |
| 3 | Technical data sheet |  |  |
| 4 | Copy of Test certificates as per IEC carried out by the manufacturer in the last 12 months from the deadline for the submission of the bid. |  |  |
| 5 | Documentation on relevant quality assurance systems in place |  |  |
| **G** | **Training on equipment supplied** |  |  |
| 1 | NA |  |  |

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| TECHNICAL SPECIFICATION AND COMPATIBILITY TABLE | | | |
| 1 | 2 | 3 | 4 |
| No. | **ITEM NAME & DESCRIPTION**  **Cable 3x35+16 mm2 NYY** | BIDDER’S OFFER | Ref. page no of Supporting Documents |
|  | **Item number: 19** |  |  |
|  | Cable copper 3x35+16 mm2 for usage in 0.4KV low voltage network in Syria, according to IEC standard 60502-1 power cables, plus IEC 60228. | Manufacturer:  Brand:  Type/Model:  Catalogue reference:  Country of Origin: |  |
|  | **APPLICATION** |  |  |
|  | it applies to electrical power transmission and distribution lines for outdoor and indoor installation in damp and in wet locations |  |  |
| **A** | **DESCRIPTION OF BASIC COMPONENTS WITH TECHNICAL SPECIFICATIONS** |  |  |
|  | **General data** |  |  |
| 1 | Type: compacted stranded |  |  |
| 2 | Material: annealed copper wires (99,99% purity and not less than 100% conductivity.  The conductor shall be clean, smooth and free from foreign particles and defects. |  |  |
| 3 | Nominal cross section: 3 x 35+16 mm2 |  |  |
| 4 | Polyvinyl chloride |  |  |
| 5 | Inner sheath : PVC |  |  |
| 6 | Unarmed |  |  |
| 7. | Outer sheath: PVC |  |  |
| 7.1 | Fire retardant |  |  |
| 7.2 | Length marking at every meter interval |  |  |
| 7.3 | Color: Black |  |  |
|  | **Electrical data** |  |  |
| 8 | Rated Voltage (Uo/U) 0.6/1 KV |  |  |
| 9 | Highest System Voltage (Umax): 1.2 KV |  |  |
| 10 | Frequency: 50 Hz |  |  |
| 11 | Power frequency withstand  voltage (4 x Uo): Minimum 2.4 KV/4 hours |  |  |
| 12 | Minimum installation temperature: ≥-10°C |  |  |
| 13 | Max. conductor temperature in service:  ≥90°C |  |  |
|  |  |  |  |
| **B** | **ACCESSORIES & CONSUMABLES** |  |  |
| 1 | *NA* |  |  |
| **C** | **STANDARD REQUIREMENTS AND INSTRUCTIONS** |  |  |
| 1 | For all Tests; Sample Tests, Routine Tests and Tests after installation, reference shall generally be made to the relevant IEC 60502 and IEC 60332Standards. |  |  |
| 2 | The item offered shall be designed to operate normally under the conditions of the Implementing Entities country (Syria), i.e.:  - Altitude above sea level: 1.000 m (max.)  - Max. ambient temperature: 50°C - Min. ambient temperature: - 10°C  - Average annual temperature: 35°C - Maximal temperature variation in one day  20 °C  - Average maximum relative humidity: 80% at 30 degree C  - (Relative humidity in some site of Syria of up to 100% is possible) |  |  |
| 3 | Operating electric environment:  20 kV Distribution System   * 20 kV + 5% Three phases, three wires * Vector group of distribution transformer 20 kV/0.4 kV DYN11 * Maximum service voltage : 24 kV * Rated frequency : 50 Hz * Impulse withstand voltage level : 125 kV at 1.2/50 µs * Short circuit apparent power of the system 500 MVA * Fluctuations in supply voltage up to plus 10% to minus 15%. |  |  |
| 4 | The equipment supplied must be new with proper serial number as proof |  |  |
| 5 | User's instructions n English and in Arabic must be supplied. |  |  |
| **D** | **OPTIONS** |  |  |
| 1 | *NA* |  |  |
| **E** | **NOTE** |  |  |
| 1 | Bidders may propose any product/system, which is equivalent or better than the requirements specified above. |  |  |
| 2 | On the cable’s outer sheath the following shall be embossed at one meter interval starting from 000 against each drum length:  • ELECTRIC CABLE 600/1000V  • Cable size  • Manufacturers name  • Year of manufacturing  • Owners name as  ‘PROPERTY OF SRT FUND’  • Sequential length marking at  every meter interval starting from  000. |  |  |
| 3 | The marking on the drum must be clear and written on two sides of the drum with inerasable materials also metal label in both sides of drum including all the information. It is important to mark each drum, clearly by the following:  • contract number;  • the purchaser;  • delivery number, shipment  number;  • manufacturing date;  • name of manufacturer;  • kind of materials;  • quantities contained length;  • main technical specification ;  • cross section;  • gross weight, net weight; |  |  |
| 4 | Bidder shall furnish a clause-by-clause commentary on the requirements above in column 3 of this TSF. Bidder who comment with texts such as "Yes", "Complied", "Refer to catalogue", copying texts directly from the technical specifications form, leave any parameter line blank and/ or submit any text or content of this nature may be considered as NON-RESPONSIVE. |  |  |
| **F** | **Documentation** |  |  |
| 1 | Bidder should provide the following documents as relevant for bid submission and refer to these in column 4 of this TSF. |  |  |
| 2 | Brochures or catalogues |  |  |
| 3 | Technical data sheet |  |  |
| 4 | Copy of Test certificates as per IEC carried out by the manufacturer in the last 12 months from the deadline for the submission of the bid. |  |  |
| 5 | Documentation on relevant quality assurance systems in place |  |  |
| **G** | **Training on equipment supplied** |  |  |
| 1 | NA |  |  |

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| --- | --- | --- | --- |
| TECHNICAL SPECIFICATION AND COMPATIBILITY TABLE | | | |
| 1 | 2 | 3 | 4 |
| No. | **ITEM NAME & DESCRIPTION**  **Cable 3x70+35 mm2 NYY** | BIDDER’S OFFER | Ref. page no of Supporting Documents |
|  | **Item number: 20** |  |  |
|  | Cable copper 3x70+35 mm2 for usage in 0.4KV low voltage network in Syria, according to IEC standard 60502-1 power cables, plus IEC 60228. | Manufacturer:  Brand:  Type/Model:  Catalogue reference:  Country of Origin: |  |
|  | **APPLICATION** |  |  |
|  | it applies to electrical power transmission and distribution lines for outdoor and indoor installation in damp and in wet locations |  |  |
| **A** | **DESCRIPTION OF BASIC COMPONENTS WITH TECHNICAL SPECIFICATIONS** |  |  |
|  | **General data** |  |  |
| 1 | Type: compacted stranded |  |  |
| 2 | Material: annealed copper wires (99,99% purity and not less than 100% conductivity.  The conductor shall be clean, smooth and free from foreign particles and defects. |  |  |
| 3 | Nominal cross section: 3 x 70+35 mm2 |  |  |
| 4 | Polyvinyl chloride |  |  |
| 5 | Inner sheath : PVC |  |  |
| 6 | Unarmed |  |  |
| 7. | Outer sheath: PVC |  |  |
| 7.1 | Fire retardant |  |  |
| 7.2 | Length marking at every meter interval |  |  |
| 7.3 | Color: Black |  |  |
|  | **Electrical data** |  |  |
| 8 | Rated Voltage (Uo/U) 0.6/1 KV |  |  |
| 9 | Highest System Voltage (Umax): 1.2 KV |  |  |
| 10 | Frequency: 50 Hz |  |  |
| 11 | Power frequency withstand  voltage (4 x Uo): Minimum 2.4 KV/4 hours |  |  |
| 12 | Minimum installation temperature: ≥-10°C |  |  |
| 13 | Max. conductor temperature in service:  ≥90°C |  |  |
|  |  |  |  |
| **B** | **ACCESSORIES & CONSUMABLES** |  |  |
| 1 | *NA* |  |  |
| **C** | **STANDARD REQUIREMENTS AND INSTRUCTIONS** |  |  |
| 1 | For all Tests; Sample Tests, Routine Tests and Tests after installation, reference shall generally be made to the relevant IEC 60502 and IEC 60332Standards. |  |  |
| 2 | The item offered shall be designed to operate normally under the conditions of the Implementing Entities country (Syria), i.e.:  - Altitude above sea level: 1.000 m (max.)  - Max. ambient temperature: 50°C - Min. ambient temperature: - 10°C  - Average annual temperature: 35°C - Maximal temperature variation in one day  20 °C  - Average maximum relative humidity: 80% at 30 degree C  - (Relative humidity in some site of Syria of up to 100% is possible) |  |  |
| 3 | Operating electric environment:  20 kV Distribution System   * 20 kV + 5% Three phases, three wires * Vector group of distribution transformer 20 kV/0.4 kV DYN11 * Maximum service voltage : 24 kV * Rated frequency : 50 Hz * Impulse withstand voltage level : 125 kV at 1.2/50 µs * Short circuit apparent power of the system 500 MVA * Fluctuations in supply voltage up to plus 10% to minus 15%. |  |  |
| 4 | The equipment supplied must be new with proper serial number as proof |  |  |
| 5 | User's instructions n English and in Arabic must be supplied. |  |  |
| **D** | **OPTIONS** |  |  |
| 1 | *NA* |  |  |
| **E** | **NOTE** |  |  |
| 1 | Bidders may propose any product/system, which is equivalent or better than the requirements specified above. |  |  |
| 2 | On the cable’s outer sheath the following shall be embossed at one meter interval starting from 000 against each drum length:  • ELECTRIC CABLE 600/1000V  • Cable size  • Manufacturers name  • Year of manufacturing  • Owners name as  ‘PROPERTY OF SRT FUND’  • Sequential length marking at  every meter interval starting from  000. |  |  |
| 3 | The marking on the drum must be clear and written on two sides of the drum with inerasable materials also metal label in both sides of drum including all the information. It is important to mark each drum, clearly by the following:  • contract number;  • the purchaser;  • delivery number, shipment  number;  • manufacturing date;  • name of manufacturer;  • kind of materials;  • quantities contained length;  • main technical specification ;  • cross section;  • gross weight, net weight; |  |  |
| 4 | Bidder shall furnish a clause-by-clause commentary on the requirements above in column 3 of this TSF. Bidder who comment with texts such as "Yes", "Complied", "Refer to catalogue", copying texts directly from the technical specifications form, leave any parameter line blank and/ or submit any text or content of this nature may be considered as NON-RESPONSIVE. |  |  |
| **F** | **Documentation** |  |  |
| 1 | Bidder should provide the following documents as relevant for bid submission and refer to these in column 4 of this TSF. |  |  |
| 2 | Brochures or catalogues |  |  |
| 3 | Technical data sheet |  |  |
| 4 | Copy of Test certificates as per IEC carried out by the manufacturer in the last 12 months from the deadline for the submission of the bid. |  |  |
| 5 | Documentation on relevant quality assurance systems in place |  |  |
| **G** | **Training on equipment supplied** |  |  |
| 1 | NA |  |  |

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| TECHNICAL SPECIFICATION AND COMPATIBILITY TABLE | | | |
| 1 | 2 | 3 | 4 |
| No. | **ITEM NAME & DESCRIPTION**  **Cable 3x95+50 mm2 NYY** | BIDDER’S OFFER | Ref. page no of Supporting Documents |
|  | **Item number: 21** |  |  |
|  | Cable copper 3x95+50 mm2 for usage in 0.4KV low voltage network in Syria, according to IEC standard 60502-1 power cables, plus IEC 60228. | Manufacturer:  Brand:  Type/Model:  Catalogue reference:  Country of Origin: |  |
|  | **APPLICATION** |  |  |
|  | it applies to electrical power transmission and distribution lines for outdoor and indoor installation in damp and in wet locations |  |  |
| **A** | **DESCRIPTION OF BASIC COMPONENTS WITH TECHNICAL SPECIFICATIONS** |  |  |
|  | **General data** |  |  |
| 1 | Type: compacted stranded |  |  |
| 2 | Material: annealed copper wires (99,99% purity and not less than 100% conductivity.  The conductor shall be clean, smooth and free from foreign particles and defects. |  |  |
| 3 | Nominal cross section: 3 x 95+50 mm2 |  |  |
| 4 | Polyvinyl chloride |  |  |
| 5 | Inner sheath : PVC |  |  |
| 6 | Unarmed |  |  |
| 7. | Outer sheath: PVC |  |  |
| 7.1 | Fire retardant |  |  |
| 7.2 | Length marking at every meter interval |  |  |
| 7.3 | Color: Black |  |  |
|  | **Electrical data** |  |  |
| 8 | Rated Voltage (Uo/U) 0.6/1 KV |  |  |
| 9 | Highest System Voltage (Umax): 1.2 KV |  |  |
| 10 | Frequency: 50 Hz |  |  |
| 11 | Power frequency withstand  voltage (4 x Uo): Minimum 2.4 KV/4 hours |  |  |
| 12 | Minimum installation temperature: ≥-10°C |  |  |
| 13 | Max. conductor temperature in service:  ≥90°C |  |  |
|  |  |  |  |
| **B** | **ACCESSORIES & CONSUMABLES** |  |  |
| 1 | *NA* |  |  |
| **C** | **STANDARD REQUIREMENTS AND INSTRUCTIONS** |  |  |
| 1 | For all Tests; Sample Tests, Routine Tests and Tests after installation, reference shall generally be made to the relevant IEC 60502 and IEC 60332Standards. |  |  |
| 2 | The item offered shall be designed to operate normally under the conditions of the Implementing Entities country (Syria), i.e.:  - Altitude above sea level: 1.000 m (max.)  - Max. ambient temperature: 50°C - Min. ambient temperature: - 10°C  - Average annual temperature: 35°C - Maximal temperature variation in one day  20 °C  - Average maximum relative humidity: 80% at 30 degree C  - (Relative humidity in some site of Syria of up to 100% is possible) |  |  |
| 3 | Operating electric environment:  20 kV Distribution System   * 20 kV + 5% Three phases, three wires * Vector group of distribution transformer 20 kV/0.4 kV DYN11 * Maximum service voltage : 24 kV * Rated frequency : 50 Hz * Impulse withstand voltage level : 125 kV at 1.2/50 µs * Short circuit apparent power of the system 500 MVA * Fluctuations in supply voltage up to plus 10% to minus 15%. |  |  |
| 4 | The equipment supplied must be new with proper serial number as proof |  |  |
| 5 | User's instructions n English and in Arabic must be supplied. |  |  |
| **D** | **OPTIONS** |  |  |
| 1 | *NA* |  |  |
| **E** | **NOTE** |  |  |
| 1 | Bidders may propose any product/system, which is equivalent or better than the requirements specified above. |  |  |
| 2 | On the cable’s outer sheath the following shall be embossed at one meter interval starting from 000 against each drum length:  • ELECTRIC CABLE 600/1000V  • Cable size  • Manufacturers name  • Year of manufacturing  • Owners name as  ‘PROPERTY OF SRT FUND’  • Sequential length marking at  every meter interval starting from  000. |  |  |
| 3 | The marking on the drum must be clear and written on two sides of the drum with inerasable materials also metal label in both sides of drum including all the information. It is important to mark each drum, clearly by the following:  • contract number;  • the purchaser;  • delivery number, shipment  number;  • manufacturing date;  • name of manufacturer;  • kind of materials;  • quantities contained length;  • main technical specification ;  • cross section;  • gross weight, net weight; |  |  |
| 4 | Bidder shall furnish a clause-by-clause commentary on the requirements above in column 3 of this TSF. Bidder who comment with texts such as "Yes", "Complied", "Refer to catalogue", copying texts directly from the technical specifications form, leave any parameter line blank and/ or submit any text or content of this nature may be considered as NON-RESPONSIVE. |  |  |
| **F** | **Documentation** |  |  |
| 1 | Bidder should provide the following documents as relevant for bid submission and refer to these in column 4 of this TSF. |  |  |
| 2 | Brochures or catalogues |  |  |
| 3 | Technical data sheet |  |  |
| 4 | Copy of Test certificates as per IEC carried out by the manufacturer in the last 12 months from the deadline for the submission of the bid. |  |  |
| 5 | Documentation on relevant quality assurance systems in place |  |  |
| **G** | **Training on equipment supplied** |  |  |
| 1 | NA |  |  |

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| TECHNICAL SPECIFICATION AND COMPATIBILITY TABLE | | | |
| 1 | 2 | 3 | 4 |
| No. | **ITEM NAME & DESCRIPTION**  **Cable 3x185+70 mm2 NYY** | BIDDER’S OFFER | Ref. page no of Supporting Documents |
|  | **Item number: 22** |  |  |
|  | Cable copper 3x185+70 mm2 for usage in 0.4KV low voltage network in Syria, according to IEC standard 60502-1 power cables, plus IEC 60228. | Manufacturer:  Brand:  Type/Model:  Catalogue reference:  Country of Origin: |  |
|  | **APPLICATION** |  |  |
|  | it applies to electrical power transmission and distribution lines for outdoor and indoor installation in damp and in wet locations |  |  |
| **A** | **DESCRIPTION OF BASIC COMPONENTS WITH TECHNICAL SPECIFICATIONS** |  |  |
|  | **General data** |  |  |
| 1 | Type: compacted stranded |  |  |
| 2 | Material: annealed copper wires (99,99% purity and not less than 100% conductivity.  The conductor shall be clean, smooth and free from foreign particles and defects. |  |  |
| 3 | Nominal cross section: 3 x 185+70 mm2 |  |  |
| 4 | Polyvinyl chloride |  |  |
| 5 | Inner sheath : PVC |  |  |
| 6 | Unarmed |  |  |
| 7. | Outer sheath: PVC |  |  |
| 7.1 | Fire retardant |  |  |
| 7.2 | Length marking at every meter interval |  |  |
| 7.3 | Color: Black |  |  |
|  | **Electrical data** |  |  |
| 8 | Rated Voltage (Uo/U) 0.6/1 KV |  |  |
| 9 | Highest System Voltage (Umax): 1.2 KV |  |  |
| 10 | Frequency: 50 Hz |  |  |
| 11 | Power frequency withstand  voltage (4 x Uo): Minimum 2.4 KV/4 hours |  |  |
| 12 | Minimum installation temperature: ≥-10°C |  |  |
| 13 | Max. conductor temperature in service:  ≥90°C |  |  |
|  |  |  |  |
| **B** | **ACCESSORIES & CONSUMABLES** |  |  |
| 1 | *NA* |  |  |
| **C** | **STANDARD REQUIREMENTS AND INSTRUCTIONS** |  |  |
| 1 | For all Tests; Sample Tests, Routine Tests and Tests after installation, reference shall generally be made to the relevant IEC 60502 and IEC 60332Standards. |  |  |
| 2 | The item offered shall be designed to operate normally under the conditions of the Implementing Entities country (Syria), i.e.:  - Altitude above sea level: 1.000 m (max.)  - Max. ambient temperature: 50°C - Min. ambient temperature: - 10°C  - Average annual temperature: 35°C - Maximal temperature variation in one day  20 °C  - Average maximum relative humidity: 80% at 30 degree C  - (Relative humidity in some site of Syria of up to 100% is possible) |  |  |
| 3 | Operating electric environment:  20 kV Distribution System   * 20 kV + 5% Three phases, three wires * Vector group of distribution transformer 20 kV/0.4 kV DYN11 * Maximum service voltage : 24 kV * Rated frequency : 50 Hz * Impulse withstand voltage level : 125 kV at 1.2/50 µs * Short circuit apparent power of the system 500 MVA * Fluctuations in supply voltage up to plus 10% to minus 15%. |  |  |
| 4 | The equipment supplied must be new with proper serial number as proof |  |  |
| 5 | User's instructions n English and in Arabic must be supplied. |  |  |
| **D** | **OPTIONS** |  |  |
| 1 | *NA* |  |  |
| **E** | **NOTE** |  |  |
| 1 | Bidders may propose any product/system, which is equivalent or better than the requirements specified above. |  |  |
| 2 | On the cable’s outer sheath the following shall be embossed at one meter interval starting from 000 against each drum length:  • ELECTRIC CABLE 600/1000V  • Cable size  • Manufacturers name  • Year of manufacturing  • Owners name as  ‘PROPERTY OF SRT FUND’  • Sequential length marking at  every meter interval starting from  000. |  |  |
| 3 | The marking on the drum must be clear and written on two sides of the drum with inerasable materials also metal label in both sides of drum including all the information. It is important to mark each drum, clearly by the following:  • contract number;  • the purchaser;  • delivery number, shipment  number;  • manufacturing date;  • name of manufacturer;  • kind of materials;  • quantities contained length;  • main technical specification ;  • cross section;  • gross weight, net weight; |  |  |
| 4 | Bidder shall furnish a clause-by-clause commentary on the requirements above in column 3 of this TSF. Bidder who comment with texts such as "Yes", "Complied", "Refer to catalogue", copying texts directly from the technical specifications form, leave any parameter line blank and/ or submit any text or content of this nature may be considered as NON-RESPONSIVE. |  |  |
| **F** | **Documentation** |  |  |
| 1 | Bidder should provide the following documents as relevant for bid submission and refer to these in column 4 of this TSF. |  |  |
| 2 | Brochures or catalogues |  |  |
| 3 | Technical data sheet |  |  |
| 4 | Copy of Test certificates as per IEC carried out by the manufacturer in the last 12 months from the deadline for the submission of the bid. |  |  |
| 5 | Documentation on relevant quality assurance systems in place |  |  |
| **G** | **Training on equipment supplied** |  |  |
| 1 | NA |  |  |

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| --- | --- | --- | --- |
| TECHNICAL SPECIFICATION AND COMPATIBILITY TABLE | | | |
| 1 | 2 | 3 | 4 |
| No. | **ITEM NAME & DESCRIPTION**  **Cable 3x16 mm2 NYMHFLY FLAT**  **TYPE : NSH** | BIDDER’S OFFER | Ref. page no of Supporting Documents |
|  | **Item number: 23** |  |  |
|  | Cable copper 3x16 mm2 for usage in 0.4KV low voltage network in Syria, according to IEC standard 60502-1 power cables, plus IEC 60228. | Manufacturer:  Brand:  Type/Model:  Catalogue reference:  Country of Origin: |  |
|  | **APPLICATION** |  |  |
|  | To provide the electricity for Submersible Water Pump low voltage . |  |  |
| **A** | **DESCRIPTION OF BASIC COMPONENTS WITH TECHNICAL SPECIFICATIONS** |  |  |
|  | **General data** |  |  |
| 1 | Type: NSH |  |  |
| 2 | Material: annealed copper wires (99,99% purity and not less than 100% conductivity.  The conductor shall be clean, smooth and free from foreign particles and defects. |  |  |
| 3 | Nominal cross section: 3 x 16 mm2 |  |  |
| 4 | Rated voltage : 1000 V |  |  |
| 5 | VDE 0250/3.69/810 |  |  |
| 6 | Unarmed |  |  |
| 7. | Soft annealed fine stranded Copper |  |  |
| 8 | Rubber or like rubber or TPR |  |  |
| 9 | Sheath : PVC OR Rubber |  |  |
| 10 | Color: Black |  |  |
|  | **Electrical data** |  |  |
| 1 | Rated Voltage (Uo/U) 0.6/1 KV |  |  |
| 2 | Highest System Voltage (Umax): 1.2 KV |  |  |
| 3 | Frequency: 50 Hz |  |  |
| 4 | Power frequency withstand  voltage (4 x Uo): Minimum 2.4 KV/4 hours |  |  |
| 5 | Minimum installation temperature: ≥-10°C |  |  |
| 6 | Max. conductor temperature in service:  ≥90°C |  |  |
|  |  |  |  |
| **B** | **ACCESSORIES & CONSUMABLES** |  |  |
| 1 | *NA* |  |  |
| **C** | **STANDARD REQUIREMENTS AND INSTRUCTIONS** |  |  |
| 1 | For all Tests; Sample Tests, Routine Tests and Tests after installation, reference shall generally be made to the relevant IEC 60502 and IEC 60332Standards. |  |  |
| 2 | The item offered shall be designed to operate normally under the conditions of the Implementing Entities country (Syria), i.e.:  - Altitude above sea level: 1.000 m (max.)  - Max. ambient temperature: 50°C - Min. ambient temperature: - 10°C  - Average annual temperature: 35°C - Maximal temperature variation in one day  20 °C  - Average maximum relative humidity: 80% at 30 degree C  - (Relative humidity in some site of Syria of up to 100% is possible) |  |  |
| 3 | Operating electric environment:  20 kV Distribution System   * 20 kV + 5% Three phases, three wires * Vector group of distribution transformer 20 kV/0.4 kV DYN11 * Maximum service voltage : 24 kV * Rated frequency : 50 Hz * Impulse withstand voltage level : 125 kV at 1.2/50 µs * Short circuit apparent power of the system 500 MVA * Fluctuations in supply voltage up to plus 10% to minus 15%. |  |  |
| 4 | The equipment supplied must be new with proper serial number as proof |  |  |
| 5 | User's instructions n English and in Arabic must be supplied. |  |  |
| **D** | **OPTIONS** |  |  |
| 1 | *NA* |  |  |
| **E** | **NOTE** |  |  |
| 1 | Bidders may propose any product/system, which is equivalent or better than the requirements specified above. |  |  |
| 2 | On the cable’s outer sheath the following shall be embossed at one meter interval starting from 000 against each drum length:  • ELECTRIC CABLE 600/1000V  • Cable size  • Manufacturers name  • Year of manufacturing  • Owners name as  ‘PROPERTY OF SRT FUND’  • Sequential length marking at  every meter interval starting from  000. |  |  |
| 3 | The marking on the drum must be clear and written on two sides of the drum with inerasable materials also metal label in both sides of drum including all the information. It is important to mark each drum, clearly by the following:  • contract number;  • the purchaser;  • delivery number, shipment  number;  • manufacturing date;  • name of manufacturer;  • kind of materials;  • quantities contained length;  • main technical specification ;  • cross section;  • gross weight, net weight; |  |  |
| 4 | Bidder shall furnish a clause-by-clause commentary on the requirements above in column 3 of this TSF. Bidder who comment with texts such as "Yes", "Complied", "Refer to catalogue", copying texts directly from the technical specifications form, leave any parameter line blank and/ or submit any text or content of this nature may be considered as NON-RESPONSIVE. |  |  |
| **F** | **Documentation** |  |  |
| 1 | Bidder should provide the following documents as relevant for bid submission and refer to these in column 4 of this TSF. |  |  |
| 2 | Brochures or catalogues |  |  |
| 3 | Technical data sheet |  |  |
| 4 | Copy of Test certificates as per IEC carried out by the manufacturer in the last 12 months from the deadline for the submission of the bid. |  |  |
| 5 | Documentation on relevant quality assurance systems in place |  |  |
| **G** | **Training on equipment supplied** |  |  |
| 1 | NA |  |  |

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| --- | --- | --- | --- |
| TECHNICAL SPECIFICATION AND COMPATIBILITY TABLE | | | |
| 1 | 2 | 3 | 4 |
| No. | **ITEM NAME & DESCRIPTION**  **Cable 3x25 mm2 NYMHFLY FLAT**  **TYPE : NSH** | BIDDER’S OFFER | Ref. page no of Supporting Documents |
|  | **Item number: 24** |  |  |
|  | Cable copper 3x25 mm2 for usage in 0.4KV low voltage network in Syria, according to IEC standard 60502-1 power cables, plus IEC 60228. | Manufacturer:  Brand:  Type/Model:  Catalogue reference:  Country of Origin: |  |
|  | **APPLICATION** |  |  |
|  | To provide the electricity for Submersible Water Pump low voltage . |  |  |
| **A** | **DESCRIPTION OF BASIC COMPONENTS WITH TECHNICAL SPECIFICATIONS** |  |  |
|  | **General data** |  |  |
| 1 | Type: NSH |  |  |
| 2 | Material: annealed copper wires (99,99% purity and not less than 100% conductivity.  The conductor shall be clean, smooth and free from foreign particles and defects. |  |  |
| 3 | Nominal cross section: 3 x 25 mm2 |  |  |
| 4 | Rated voltage : 1000 V |  |  |
| 5 | VDE 0250/3.69/810 |  |  |
| 6 | Unarmed |  |  |
| 7. | Soft annealed fine stranded Copper |  |  |
| 8 | Rubber or like rubber or TPR |  |  |
| 9 | Sheath : PVC OR Rubber |  |  |
| 10 | Color: Black |  |  |
|  | **Electrical data** |  |  |
| 1 | Rated Voltage (Uo/U) 0.6/1 KV |  |  |
| 2 | Highest System Voltage (Umax): 1.2 KV |  |  |
| 3 | Frequency: 50 Hz |  |  |
| 4 | Power frequency withstand  voltage (4 x Uo): Minimum 2.4 KV/4 hours |  |  |
| 5 | Minimum installation temperature: ≥-10°C |  |  |
| 6 | Max. conductor temperature in service:  ≥90°C |  |  |
|  |  |  |  |
| **B** | **ACCESSORIES & CONSUMABLES** |  |  |
| 1 | *NA* |  |  |
| **C** | **STANDARD REQUIREMENTS AND INSTRUCTIONS** |  |  |
| 1 | For all Tests; Sample Tests, Routine Tests and Tests after installation, reference shall generally be made to the relevant IEC 60502 and IEC 60332Standards. |  |  |
| 2 | The item offered shall be designed to operate normally under the conditions of the Implementing Entities country (Syria), i.e.:  - Altitude above sea level: 1.000 m (max.)  - Max. ambient temperature: 50°C - Min. ambient temperature: - 10°C  - Average annual temperature: 35°C - Maximal temperature variation in one day  20 °C  - Average maximum relative humidity: 80% at 30 degree C  - (Relative humidity in some site of Syria of up to 100% is possible) |  |  |
| 3 | Operating electric environment:  20 kV Distribution System   * 20 kV + 5% Three phases, three wires * Vector group of distribution transformer 20 kV/0.4 kV DYN11 * Maximum service voltage : 24 kV * Rated frequency : 50 Hz * Impulse withstand voltage level : 125 kV at 1.2/50 µs * Short circuit apparent power of the system 500 MVA * Fluctuations in supply voltage up to plus 10% to minus 15%. |  |  |
| 4 | The equipment supplied must be new with proper serial number as proof |  |  |
| 5 | User's instructions n English and in Arabic must be supplied. |  |  |
| **D** | **OPTIONS** |  |  |
| 1 | *NA* |  |  |
| **E** | **NOTE** |  |  |
| 1 | Bidders may propose any product/system, which is equivalent or better than the requirements specified above. |  |  |
| 2 | On the cable’s outer sheath the following shall be embossed at one meter interval starting from 000 against each drum length:  • ELECTRIC CABLE 600/1000V  • Cable size  • Manufacturers name  • Year of manufacturing  • Owners name as  ‘PROPERTY OF SRT FUND’  • Sequential length marking at  every meter interval starting from  000. |  |  |
| 3 | The marking on the drum must be clear and written on two sides of the drum with inerasable materials also metal label in both sides of drum including all the information. It is important to mark each drum, clearly by the following:  • contract number;  • the purchaser;  • delivery number, shipment  number;  • manufacturing date;  • name of manufacturer;  • kind of materials;  • quantities contained length;  • main technical specification ;  • cross section;  • gross weight, net weight; |  |  |
| 4 | Bidder shall furnish a clause-by-clause commentary on the requirements above in column 3 of this TSF. Bidder who comment with texts such as "Yes", "Complied", "Refer to catalogue", copying texts directly from the technical specifications form, leave any parameter line blank and/ or submit any text or content of this nature may be considered as NON-RESPONSIVE. |  |  |
| **F** | **Documentation** |  |  |
| 1 | Bidder should provide the following documents as relevant for bid submission and refer to these in column 4 of this TSF. |  |  |
| 2 | Brochures or catalogues |  |  |
| 3 | Technical data sheet |  |  |
| 4 | Copy of Test certificates as per IEC carried out by the manufacturer in the last 12 months from the deadline for the submission of the bid. |  |  |
| 5 | Documentation on relevant quality assurance systems in place |  |  |
| **G** | **Training on equipment supplied** |  |  |
| 1 | NA |  |  |

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| TECHNICAL SPECIFICATION AND COMPATIBILITY TABLE | | | |
| 1 | 2 | 3 | 4 |
| No. | **ITEM NAME & DESCRIPTION**  **Cable 3x35 mm2 NYMHFLY FLAT**  **TYPE : NSH** | BIDDER’S OFFER | Ref. page no of Supporting Documents |
|  | **Item number: 25** |  |  |
|  | Cable copper 3x16 mm2 for usage in 0.4KV low voltage network in Syria, according to IEC standard 60502-1 power cables, plus IEC 60228. | Manufacturer:  Brand:  Type/Model:  Catalogue reference:  Country of Origin: |  |
|  | **APPLICATION** |  |  |
|  | To provide the electricity for Summersible Water Pump low voltage . |  |  |
| **A** | **DESCRIPTION OF BASIC COMPONENTS WITH TECHNICAL SPECIFICATIONS** |  |  |
|  | **General data** |  |  |
| 1 | Type: NSH |  |  |
| 2 | Material: annealed copper wires (99,99% purity and not less than 100% conductivity.  The conductor shall be clean, smooth and free from foreign particles and defects. |  |  |
| 3 | Nominal cross section: 3 x 16 mm2 |  |  |
| 4 | Rated voltage : 1000 V |  |  |
| 5 | VDE 0250/3.69/810 |  |  |
| 6 | Unarmed |  |  |
| 7. | Soft annealed fine stranded Copper |  |  |
| 8 | Rubber or like rubber or TPR |  |  |
| 9 | Sheath : PVC OR Rubber |  |  |
| 10 | Color: Black |  |  |
|  | **Electrical data** |  |  |
| 1 | Rated Voltage (Uo/U) 0.6/1 KV |  |  |
| 2 | Highest System Voltage (Umax): 1.2 KV |  |  |
| 3 | Frequency: 50 Hz |  |  |
| 4 | Power frequency withstand  voltage (4 x Uo): Minimum 2.4 KV/4 hours |  |  |
| 5 | Minimum installation temperature: ≥-10°C |  |  |
| 6 | Max. conductor temperature in service:  ≥90°C |  |  |
|  |  |  |  |
| **B** | **ACCESSORIES & CONSUMABLES** |  |  |
| 1 | *NA* |  |  |
| **C** | **STANDARD REQUIREMENTS AND INSTRUCTIONS** |  |  |
| 1 | For all Tests; Sample Tests, Routine Tests and Tests after installation, reference shall generally be made to the relevant IEC 60502 and IEC 60332Standards. |  |  |
| 2 | The item offered shall be designed to operate normally under the conditions of the Implementing Entities country (Syria), i.e.:  - Altitude above sea level: 1.000 m (max.)  - Max. ambient temperature: 50°C - Min. ambient temperature: - 10°C  - Average annual temperature: 35°C - Maximal temperature variation in one day  20 °C  - Average maximum relative humidity: 80% at 30 degree C  - (Relative humidity in some site of Syria of up to 100% is possible) |  |  |
| 3 | Operating electric environment:  20 kV Distribution System   * 20 kV + 5% Three phases, three wires * Vector group of distribution transformer 20 kV/0.4 kV DYN11 * Maximum service voltage : 24 kV * Rated frequency : 50 Hz * Impulse withstand voltage level : 125 kV at 1.2/50 µs * Short circuit apparent power of the system 500 MVA * Fluctuations in supply voltage up to plus 10% to minus 15%. |  |  |
| 4 | The equipment supplied must be new with proper serial number as proof |  |  |
| 5 | User's instructions n English and in Arabic must be supplied. |  |  |
| **D** | **OPTIONS** |  |  |
| 1 | *NA* |  |  |
| **E** | **NOTE** |  |  |
| 1 | Bidders may propose any product/system, which is equivalent or better than the requirements specified above. |  |  |
| 2 | On the cable’s outer sheath the following shall be embossed at one meter interval starting from 000 against each drum length:  • ELECTRIC CABLE 600/1000V  • Cable size  • Manufacturers name  • Year of manufacturing  • Owners name as  ‘PROPERTY OF SRT FUND’  • Sequential length marking at  every meter interval starting from  000. |  |  |
| 3 | The marking on the drum must be clear and written on two sides of the drum with inerasable materials also metal label in both sides of drum including all the information. It is important to mark each drum, clearly by the following:  • contract number;  • the purchaser;  • delivery number, shipment  number;  • manufacturing date;  • name of manufacturer;  • kind of materials;  • quantities contained length;  • main technical specification ;  • cross section;  • gross weight, net weight; |  |  |
| 4 | Bidder shall furnish a clause-by-clause commentary on the requirements above in column 3 of this TSF. Bidder who comment with texts such as "Yes", "Complied", "Refer to catalogue", copying texts directly from the technical specifications form, leave any parameter line blank and/ or submit any text or content of this nature may be considered as NON-RESPONSIVE. |  |  |
| **F** | **Documentation** |  |  |
| 1 | Bidder should provide the following documents as relevant for bid submission and refer to these in column 4 of this TSF. |  |  |
| 2 | Brochures or catalogues |  |  |
| 3 | Technical data sheet |  |  |
| 4 | Copy of Test certificates as per IEC carried out by the manufacturer in the last 12 months from the deadline for the submission of the bid. |  |  |
| 5 | Documentation on relevant quality assurance systems in place |  |  |
| **G** | **Training on equipment supplied** |  |  |
| 1 | NA |  |  |

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| TECHNICAL SPECIFICATION AND COMPATIBILITY TABLE | | | |
| 1 | 2 | 3 | 4 |
| No. | **ITEM NAME & DESCRIPTION**  **Cable 3x50 mm2 NYMHFLY FLAT**  **TYPE : NSH** | BIDDER’S OFFER | Ref. page no of Supporting Documents |
|  | **Item number: 26** |  |  |
|  | Cable copper 3x50 mm2 for usage in 0.4KV low voltage network in Syria, according to IEC standard 60502-1 power cables, plus IEC 60228. | Manufacturer:  Brand:  Type/Model:  Catalogue reference:  Country of Origin: |  |
|  | **APPLICATION** |  |  |
|  | To provide the electricity for Submerible Water Pump low voltage . |  |  |
| **A** | **DESCRIPTION OF BASIC COMPONENTS WITH TECHNICAL SPECIFICATIONS** |  |  |
|  | **General data** |  |  |
| 1 | Type: NSH |  |  |
| 2 | Material: annealed copper wires (99,99% purity and not less than 100% conductivity.  The conductor shall be clean, smooth and free from foreign particles and defects. |  |  |
| 3 | Nominal cross section: 3 x 50 mm2 |  |  |
| 4 | Rated voltage : 1000 V |  |  |
| 5 | VDE 0250/3.69/810 |  |  |
| 6 | Unarmed |  |  |
| 7. | Soft annealed fine stranded Copper |  |  |
| 8 | Rubber or like rubber or TPR |  |  |
| 9 | Sheath : PVC OR Rubber |  |  |
| 10 | Color: Black |  |  |
|  | **Electrical data** |  |  |
| 1 | Rated Voltage (Uo/U) 0.6/1 KV |  |  |
| 2 | Highest System Voltage (Umax): 1.2 KV |  |  |
| 3 | Frequency: 50 Hz |  |  |
| 4 | Power frequency withstand  voltage (4 x Uo): Minimum 2.4 KV/4 hours |  |  |
| 5 | Minimum installation temperature: ≥-10°C |  |  |
| 6 | Max. conductor temperature in service:  ≥90°C |  |  |
|  |  |  |  |
| **B** | **ACCESSORIES & CONSUMABLES** |  |  |
| 1 | *NA* |  |  |
| **C** | **STANDARD REQUIREMENTS AND INSTRUCTIONS** |  |  |
| 1 | For all Tests; Sample Tests, Routine Tests and Tests after installation, reference shall generally be made to the relevant IEC 60502 and IEC 60332Standards. |  |  |
| 2 | The item offered shall be designed to operate normally under the conditions of the Implementing Entities country (Syria), i.e.:  - Altitude above sea level: 1.000 m (max.)  - Max. ambient temperature: 50°C - Min. ambient temperature: - 10°C  - Average annual temperature: 35°C - Maximal temperature variation in one day  20 °C  - Average maximum relative humidity: 80% at 30 degree C  - (Relative humidity in some site of Syria of up to 100% is possible) |  |  |
| 3 | Operating electric environment:  20 kV Distribution System   * 20 kV + 5% Three phases, three wires * Vector group of distribution transformer 20 kV/0.4 kV DYN11 * Maximum service voltage : 24 kV * Rated frequency : 50 Hz * Impulse withstand voltage level : 125 kV at 1.2/50 µs * Short circuit apparent power of the system 500 MVA * Fluctuations in supply voltage up to plus 10% to minus 15%. |  |  |
| 4 | The equipment supplied must be new with proper serial number as proof |  |  |
| 5 | User's instructions n English and in Arabic must be supplied. |  |  |
| **D** | **OPTIONS** |  |  |
| 1 | *NA* |  |  |
| **E** | **NOTE** |  |  |
| 1 | Bidders may propose any product/system, which is equivalent or better than the requirements specified above. |  |  |
| 2 | On the cable’s outer sheath the following shall be embossed at one meter interval starting from 000 against each drum length:  • ELECTRIC CABLE 600/1000V  • Cable size  • Manufacturers name  • Year of manufacturing  • Owners name as  ‘PROPERTY OF SRT FUND’  • Sequential length marking at  every meter interval starting from  000. |  |  |
| 3 | The marking on the drum must be clear and written on two sides of the drum with inerasable materials also metal label in both sides of drum including all the information. It is important to mark each drum, clearly by the following:  • contract number;  • the purchaser;  • delivery number, shipment  number;  • manufacturing date;  • name of manufacturer;  • kind of materials;  • quantities contained length;  • main technical specification ;  • cross section;  • gross weight, net weight; |  |  |
| 4 | Bidder shall furnish a clause-by-clause commentary on the requirements above in column 3 of this TSF. Bidder who comment with texts such as "Yes", "Complied", "Refer to catalogue", copying texts directly from the technical specifications form, leave any parameter line blank and/ or submit any text or content of this nature may be considered as NON-RESPONSIVE. |  |  |
| **F** | **Documentation** |  |  |
| 1 | Bidder should provide the following documents as relevant for bid submission and refer to these in column 4 of this TSF. |  |  |
| 2 | Brochures or catalogues |  |  |
| 3 | Technical data sheet |  |  |
| 4 | Copy of Test certificates as per IEC carried out by the manufacturer in the last 12 months from the deadline for the submission of the bid. |  |  |
| 5 | Documentation on relevant quality assurance systems in place |  |  |
| **G** | **Training on equipment supplied** |  |  |
| 1 | NA |  |  |

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| TECHNICAL SPECIFICATION AND COMPATIBILITY TABLE | | | |
| 1 | 2 | 3 | 4 |
| No. | **ITEM NAME & DESCRIPTION**  **Cable 3x70 mm2 NYMHFLY FLAT**  **TYPE : NSH** | BIDDER’S OFFER | Ref. page no of Supporting Documents |
|  | **Item number: 27** |  |  |
|  | Cable copper 3x70 mm2 for usage in 0.4KV low voltage network in Syria, according to IEC standard 60502-1 power cables, plus IEC 60228. | Manufacturer:  Brand:  Type/Model:  Catalogue reference:  Country of Origin: |  |
|  | **APPLICATION** |  |  |
|  | To provide the electricity for Submerible Water Pump low voltage . |  |  |
| **A** | **DESCRIPTION OF BASIC COMPONENTS WITH TECHNICAL SPECIFICATIONS** |  |  |
|  | **General data** |  |  |
| 1 | Type: NSH |  |  |
| 2 | Material: annealed copper wires (99,99% purity and not less than 100% conductivity.  The conductor shall be clean, smooth and free from foreign particles and defects. |  |  |
| 3 | Nominal cross section: 3 x 70 mm2 |  |  |
| 4 | Rated voltage : 1000 V |  |  |
| 5 | VDE 0250/3.69/810 |  |  |
| 6 | Unarmed |  |  |
| 7. | Soft annealed fine stranded Copper |  |  |
| 8 | Rubber or like rubber or TPR |  |  |
| 9 | Sheath : PVC OR Rubber |  |  |
| 10 | Color: Black |  |  |
|  | **Electrical data** |  |  |
| 1 | Rated Voltage (Uo/U) 0.6/1 KV |  |  |
| 2 | Highest System Voltage (Umax): 1.2 KV |  |  |
| 3 | Frequency: 50 Hz |  |  |
| 4 | Power frequency withstand  voltage (4 x Uo): Minimum 2.4 KV/4 hours |  |  |
| 5 | Minimum installation temperature: ≥-10°C |  |  |
| 6 | Max. conductor temperature in service:  ≥90°C |  |  |
|  |  |  |  |
| **B** | **ACCESSORIES & CONSUMABLES** |  |  |
| 1 | *NA* |  |  |
| **C** | **STANDARD REQUIREMENTS AND INSTRUCTIONS** |  |  |
| 1 | For all Tests; Sample Tests, Routine Tests and Tests after installation, reference shall generally be made to the relevant IEC 60502 and IEC 60332Standards. |  |  |
| 2 | The item offered shall be designed to operate normally under the conditions of the Implementing Entities country (Syria), i.e.:  - Altitude above sea level: 1.000 m (max.)  - Max. ambient temperature: 50°C - Min. ambient temperature: - 10°C  - Average annual temperature: 35°C - Maximal temperature variation in one day  20 °C  - Average maximum relative humidity: 80% at 30 degree C  - (Relative humidity in some site of Syria of up to 100% is possible) |  |  |
| 3 | Operating electric environment:  20 kV Distribution System   * 20 kV + 5% Three phases, three wires * Vector group of distribution transformer 20 kV/0.4 kV DYN11 * Maximum service voltage : 24 kV * Rated frequency : 50 Hz * Impulse withstand voltage level : 125 kV at 1.2/50 µs * Short circuit apparent power of the system 500 MVA * Fluctuations in supply voltage up to plus 10% to minus 15%. |  |  |
| 4 | The equipment supplied must be new with proper serial number as proof |  |  |
| 5 | User's instructions n English and in Arabic must be supplied. |  |  |
| **D** | **OPTIONS** |  |  |
| 1 | *NA* |  |  |
| **E** | **NOTE** |  |  |
| 1 | Bidders may propose any product/system, which is equivalent or better than the requirements specified above. |  |  |
| 2 | On the cable’s outer sheath the following shall be embossed at one meter interval starting from 000 against each drum length:  • ELECTRIC CABLE 600/1000V  • Cable size  • Manufacturers name  • Year of manufacturing  • Owners name as  ‘PROPERTY OF SRT FUND’  • Sequential length marking at  every meter interval starting from  000. |  |  |
| 3 | The marking on the drum must be clear and written on two sides of the drum with inerasable materials also metal label in both sides of drum including all the information. It is important to mark each drum, clearly by the following:  • contract number;  • the purchaser;  • delivery number, shipment  number;  • manufacturing date;  • name of manufacturer;  • kind of materials;  • quantities contained length;  • main technical specification ;  • cross section;  • gross weight, net weight; |  |  |
| 4 | Bidder shall furnish a clause-by-clause commentary on the requirements above in column 3 of this TSF. Bidder who comment with texts such as "Yes", "Complied", "Refer to catalogue", copying texts directly from the technical specifications form, leave any parameter line blank and/ or submit any text or content of this nature may be considered as NON-RESPONSIVE. |  |  |
| **F** | **Documentation** |  |  |
| 1 | Bidder should provide the following documents as relevant for bid submission and refer to these in column 4 of this TSF. |  |  |
| 2 | Brochures or catalogues |  |  |
| 3 | Technical data sheet |  |  |
| 4 | Copy of Test certificates as per IEC carried out by the manufacturer in the last 12 months from the deadline for the submission of the bid. |  |  |
| 5 | Documentation on relevant quality assurance systems in place |  |  |
| **G** | **Training on equipment supplied** |  |  |
| 1 | NA |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| TECHNICAL SPECIFICATION AND COMPATIBILITY TABLE | | | |
| 1 | 2 | 3 | 4 |
| No. | **ITEM NAME & DESCRIPTION**  **Cable 3x95 mm2 NYMHFLY FLAT**  **TYPE : NSH** | BIDDER’S OFFER | Ref. page no of Supporting Documents |
|  | **Item number: 28** |  |  |
|  | Cable copper 3x95 mm2 for usage in 0.4KV low voltage network in Syria, according to IEC standard 60502-1 power cables, plus IEC 60228. | Manufacturer:  Brand:  Type/Model:  Catalogue reference:  Country of Origin: |  |
|  | **APPLICATION** |  |  |
|  | To provide the electricity for Submersible Water Pump low voltage . |  |  |
| **A** | **DESCRIPTION OF BASIC COMPONENTS WITH TECHNICAL SPECIFICATIONS** |  |  |
|  | **General data** |  |  |
| 1 | Type: NSH |  |  |
| 2 | Material: annealed copper wires (99,99% purity and not less than 100% conductivity.  The conductor shall be clean, smooth and free from foreign particles and defects. |  |  |
| 3 | Nominal cross section: 3 x 16 mm2 |  |  |
| 4 | Rated voltage : 1000 V |  |  |
| 5 | VDE 0250/3.69/810 |  |  |
| 6 | Unarmed |  |  |
| 7. | Soft annealed fine stranded Copper |  |  |
| 8 | Rubber or like rubber or TPR |  |  |
| 9 | Sheath : PVC OR Rubber |  |  |
| 10 | Color: Black |  |  |
|  | **Electrical data** |  |  |
| 1 | Rated Voltage (Uo/U) 0.6/1 KV |  |  |
| 2 | Highest System Voltage (Umax): 1.2 KV |  |  |
| 3 | Frequency: 50 Hz |  |  |
| 4 | Power frequency withstand  voltage (4 x Uo): Minimum 2.4 KV/4 hours |  |  |
| 5 | Minimum installation temperature: ≥-10°C |  |  |
| 6 | Max. conductor temperature in service:  ≥90°C |  |  |
|  |  |  |  |
| **B** | **ACCESSORIES & CONSUMABLES** |  |  |
| 1 | *NA* |  |  |
| **C** | **STANDARD REQUIREMENTS AND INSTRUCTIONS** |  |  |
| 1 | For all Tests; Sample Tests, Routine Tests and Tests after installation, reference shall generally be made to the relevant IEC 60502 and IEC 60332Standards. |  |  |
| 2 | The item offered shall be designed to operate normally under the conditions of the Implementing Entities country (Syria), i.e.:  - Altitude above sea level: 1.000 m (max.)  - Max. ambient temperature: 50°C - Min. ambient temperature: - 10°C  - Average annual temperature: 35°C - Maximal temperature variation in one day  20 °C  - Average maximum relative humidity: 80% at 30 degree C  - (Relative humidity in some site of Syria of up to 100% is possible) |  |  |
| 3 | Operating electric environment:  20 kV Distribution System   * 20 kV + 5% Three phases, three wires * Vector group of distribution transformer 20 kV/0.4 kV DYN11 * Maximum service voltage : 24 kV * Rated frequency : 50 Hz * Impulse withstand voltage level : 125 kV at 1.2/50 µs * Short circuit apparent power of the system 500 MVA * Fluctuations in supply voltage up to plus 10% to minus 15%. |  |  |
| 4 | The equipment supplied must be new with proper serial number as proof |  |  |
| 5 | User's instructions n English and in Arabic must be supplied. |  |  |
| **D** | **OPTIONS** |  |  |
| 1 | *NA* |  |  |
| **E** | **NOTE** |  |  |
| 1 | Bidders may propose any product/system, which is equivalent or better than the requirements specified above. |  |  |
| 2 | On the cable’s outer sheath the following shall be embossed at one meter interval starting from 000 against each drum length:  • ELECTRIC CABLE 600/1000V  • Cable size  • Manufacturers name  • Year of manufacturing  • Owners name as  ‘PROPERTY OF SRT FUND’  • Sequential length marking at  every meter interval starting from  000. |  |  |
| 3 | The marking on the drum must be clear and written on two sides of the drum with inerasable materials also metal label in both sides of drum including all the information. It is important to mark each drum, clearly by the following:  • contract number;  • the purchaser;  • delivery number, shipment  number;  • manufacturing date;  • name of manufacturer;  • kind of materials;  • quantities contained length;  • main technical specification ;  • cross section;  • gross weight, net weight; |  |  |
| 4 | Bidder shall furnish a clause-by-clause commentary on the requirements above in column 3 of this TSF. Bidder who comment with texts such as "Yes", "Complied", "Refer to catalogue", copying texts directly from the technical specifications form, leave any parameter line blank and/ or submit any text or content of this nature may be considered as NON-RESPONSIVE. |  |  |
| **F** | **Documentation** |  |  |
| 1 | Bidder should provide the following documents as relevant for bid submission and refer to these in column 4 of this TSF. |  |  |
| 2 | Brochures or catalogues |  |  |
| 3 | Technical data sheet |  |  |
| 4 | Copy of Test certificates as per IEC carried out by the manufacturer in the last 12 months from the deadline for the submission of the bid. |  |  |
| 5 | Documentation on relevant quality assurance systems in place |  |  |
| **G** | **Training on equipment supplied** |  |  |
| 1 | NA |  |  |

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| --- | --- | --- | --- |
| TECHNICAL SPECIFICATION AND COMPATIBILITY TABLE | | | |
| 1 | 2 | 3 | 4 |
| No. | **ITEM NAME & DESCRIPTION**  **Cable 3x1.5 mm2 NYBY** | BIDDER’S OFFER | Ref. page no of Supporting Documents |
|  | **Item number: 29** |  |  |
|  | Cable copper 3x1.5 mm2 for usage in 0.4KV low voltage network in Syria, according to IEC standard 60502-1 power cables, plus IEC 60228. | Manufacturer:  Brand:  Type/Model:  Catalogue reference:  Country of Origin: |  |
|  | **APPLICATION** |  |  |
|  | To connect the power supply to relay the water level in the horizontal and submersible pumps |  |  |
| **A** | **DESCRIPTION OF BASIC COMPONENTS WITH TECHNICAL SPECIFICATIONS** |  |  |
|  | **General data** |  |  |
| 1 | Type: compacted stranded |  |  |
| 2 | Material: annealed copper wires (99,99% purity and not less than 100% conductivity.  The conductor shall be clean, smooth and free from foreign particles and defects. |  |  |
| 3 | Nominal cross section: 3 x 1.5 mm2 |  |  |
| 4 | Polyvinyl chloride |  |  |
| 5 | Inner sheath : PVC |  |  |
| 6 | Armed |  |  |
| 7. | Outer sheath: PVC |  |  |
| 7.1 | Fire retardant |  |  |
| 7.2 | Length marking at every meter interval |  |  |
| 7.3 | Color: Black |  |  |
|  | **Electrical data** |  |  |
| 8 | Rated Voltage (Uo/U) 0.6/1 KV |  |  |
| 9 | Highest System Voltage (Umax): 1.2 KV |  |  |
| 10 | Frequency: 50 Hz |  |  |
| 11 | Power frequency withstand  voltage (4 x Uo): Minimum 2.4 KV/4 hours |  |  |
| 12 | Minimum installation temperature: ≥-10°C |  |  |
| 13 | Max. conductor temperature in service:  ≥90°C |  |  |
|  |  |  |  |
| **B** | **ACCESSORIES & CONSUMABLES** |  |  |
| 1 | *NA* |  |  |
| **C** | **STANDARD REQUIREMENTS AND INSTRUCTIONS** |  |  |
| 1 | For all Tests; Sample Tests, Routine Tests and Tests after installation, reference shall generally be made to the relevant IEC 60502 and IEC 60332Standards. |  |  |
| 2 | The item offered shall be designed to operate normally under the conditions of the Implementing Entities country (Syria), i.e.:  - Altitude above sea level: 1.000 m (max.)  - Max. ambient temperature: 50°C - Min. ambient temperature: - 10°C  - Average annual temperature: 35°C - Maximal temperature variation in one day  20 °C  - Average maximum relative humidity: 80% at 30 degree C  - (Relative humidity in some site of Syria of up to 100% is possible) |  |  |
| 3 | Operating electric environment:  20 kV Distribution System   * 20 kV + 5% Three phases, three wires * Vector group of distribution transformer 20 kV/0.4 kV DYN11 * Maximum service voltage : 24 kV * Rated frequency : 50 Hz * Impulse withstand voltage level : 125 kV at 1.2/50 µs * Short circuit apparent power of the system 500 MVA * Fluctuations in supply voltage up to plus 10% to minus 15%. |  |  |
| 4 | The equipment supplied must be new with proper serial number as proof |  |  |
| 5 | User's instructions n English and in Arabic must be supplied. |  |  |
| **D** | **OPTIONS** |  |  |
| 1 | *NA* |  |  |
| **E** | **NOTE** |  |  |
| 1 | Bidders may propose any product/system, which is equivalent or better than the requirements specified above. |  |  |
| 2 | On the cable’s outer sheath the following shall be embossed at one meter interval starting from 000 against each drum length:  • ELECTRIC CABLE 600/1000V  • Cable size  • Manufacturers name  • Year of manufacturing  • Owners name as  ‘PROPERTY OF SRT FUND’  • Sequential length marking at  every meter interval starting from  000. |  |  |
| 3 | The marking on the drum must be clear and written on two sides of the drum with inerasable materials also metal label in both sides of drum including all the information. It is important to mark each drum, clearly by the following:  • contract number;  • the purchaser;  • delivery number, shipment  number;  • manufacturing date;  • name of manufacturer;  • kind of materials;  • quantities contained length;  • main technical specification ;  • cross section;  • gross weight, net weight; |  |  |
| 4 | Bidder shall furnish a clause-by-clause commentary on the requirements above in column 3 of this TSF. Bidder who comment with texts such as "Yes", "Complied", "Refer to catalogue", copying texts directly from the technical specifications form, leave any parameter line blank and/ or submit any text or content of this nature may be considered as NON-RESPONSIVE. |  |  |
| **F** | **Documentation** |  |  |
| 1 | Bidder should provide the following documents as relevant for bid submission and refer to these in column 4 of this TSF. |  |  |
| 2 | Brochures or catalogues |  |  |
| 3 | Technical data sheet |  |  |
| 4 | Copy of Test certificates as per IEC carried out by the manufacturer in the last 12 months from the deadline for the submission of the bid. |  |  |
| 5 | Documentation on relevant quality assurance systems in place |  |  |
| **G** | **Training on equipment supplied** |  |  |
| 1 | NA |  |  |

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| --- | --- | --- | --- |
| TECHNICAL SPECIFICATION AND COMPATIBILITY TABLE | | | |
| 1 | 2 | 3 | 4 |
| No. | **ITEM NAME & DESCRIPTION**  **Cable 3x35 mm2 NYBY** | BIDDER’S OFFER | Ref. page no of Supporting Documents |
|  | **Item number: 30** |  |  |
|  | Cable copper 3x35 mm2 for usage in 0.4KV low voltage network in Syria, according to IEC standard 60502-1 power cables, plus IEC 60228. | Manufacturer:  Brand:  Type/Model:  Catalogue reference:  Country of Origin: |  |
|  | **APPLICATION** |  |  |
|  | it applies to electrical power transmission and distribution lines for outdoor and indoor installation in damp and in wet locations |  |  |
| **A** | **DESCRIPTION OF BASIC COMPONENTS WITH TECHNICAL SPECIFICATIONS** |  |  |
|  | **General data** |  |  |
| 1 | Type: compacted stranded |  |  |
| 2 | Material: annealed copper wires (99,99% purity and not less than 100% conductivity.  The conductor shall be clean, smooth and free from foreign particles and defects. |  |  |
| 3 | Nominal cross section: 3 x 35 mm2 |  |  |
| 4 | Polyvinyl chloride |  |  |
| 5 | Inner sheath : PVC |  |  |
| 6 | Armed |  |  |
| 7. | Outer sheath: PVC |  |  |
| 7.1 | Fire retardant |  |  |
| 7.2 | Length marking at every meter interval |  |  |
| 7.3 | Color: Black |  |  |
|  | **Electrical data** |  |  |
| 8 | Rated Voltage (Uo/U) 0.6/1 KV |  |  |
| 9 | Highest System Voltage (Umax): 1.2 KV |  |  |
| 10 | Frequency: 50 Hz |  |  |
| 11 | Power frequency withstand  voltage (4 x Uo): Minimum 2.4 KV/4 hours |  |  |
| 12 | Minimum installation temperature: ≥-10°C |  |  |
| 13 | Max. conductor temperature in service:  ≥90°C |  |  |
|  |  |  |  |
| **B** | **ACCESSORIES & CONSUMABLES** |  |  |
| 1 | *NA* |  |  |
| **C** | **STANDARD REQUIREMENTS AND INSTRUCTIONS** |  |  |
| 1 | For all Tests; Sample Tests, Routine Tests and Tests after installation, reference shall generally be made to the relevant IEC 60502 and IEC 60332Standards. |  |  |
| 2 | The item offered shall be designed to operate normally under the conditions of the Implementing Entities country (Syria), i.e.:  - Altitude above sea level: 1.000 m (max.)  - Max. ambient temperature: 50°C - Min. ambient temperature: - 10°C  - Average annual temperature: 35°C - Maximal temperature variation in one day  20 °C  - Average maximum relative humidity: 80% at 30 degree C  - (Relative humidity in some site of Syria of up to 100% is possible) |  |  |
| 3 | Operating electric environment:  20 kV Distribution System   * 20 kV + 5% Three phases, three wires * Vector group of distribution transformer 20 kV/0.4 kV DYN11 * Maximum service voltage : 24 kV * Rated frequency : 50 Hz * Impulse withstand voltage level : 125 kV at 1.2/50 µs * Short circuit apparent power of the system 500 MVA * Fluctuations in supply voltage up to plus 10% to minus 15%. |  |  |
| 4 | The equipment supplied must be new with proper serial number as proof |  |  |
| 5 | User's instructions n English and in Arabic must be supplied. |  |  |
| **D** | **OPTIONS** |  |  |
| 1 | *NA* |  |  |
| **E** | **NOTE** |  |  |
| 1 | Bidders may propose any product/system, which is equivalent or better than the requirements specified above. |  |  |
| 2 | On the cable’s outer sheath the following shall be embossed at one meter interval starting from 000 against each drum length:  • ELECTRIC CABLE 600/1000V  • Cable size  • Manufacturers name  • Year of manufacturing  • Owners name as  ‘PROPERTY OF SRT FUND’  • Sequential length marking at  every meter interval starting from  000. |  |  |
| 3 | The marking on the drum must be clear and written on two sides of the drum with inerasable materials also metal label in both sides of drum including all the information. It is important to mark each drum, clearly by the following:  • contract number;  • the purchaser;  • delivery number, shipment  number;  • manufacturing date;  • name of manufacturer;  • kind of materials;  • quantities contained length;  • main technical specification ;  • cross section;  • gross weight, net weight; |  |  |
| 4 | Bidder shall furnish a clause-by-clause commentary on the requirements above in column 3 of this TSF. Bidder who comment with texts such as "Yes", "Complied", "Refer to catalogue", copying texts directly from the technical specifications form, leave any parameter line blank and/ or submit any text or content of this nature may be considered as NON-RESPONSIVE. |  |  |
| **F** | **Documentation** |  |  |
| 1 | Bidder should provide the following documents as relevant for bid submission and refer to these in column 4 of this TSF. |  |  |
| 2 | Brochures or catalogues |  |  |
| 3 | Technical data sheet |  |  |
| 4 | Copy of Test certificates as per IEC carried out by the manufacturer in the last 12 months from the deadline for the submission of the bid. |  |  |
| 5 | Documentation on relevant quality assurance systems in place |  |  |
| **G** | **Training on equipment supplied** |  |  |
| 1 | NA |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| TECHNICAL SPECIFICATION AND COMPATIBILITY TABLE | | | |
| 1 | 2 | 3 | 4 |
| No. | **ITEM NAME & DESCRIPTION**  **Cable 3x50 mm2 NYBY** | BIDDER’S OFFER | Ref. page no of Supporting Documents |
|  | **Item number: 31** |  |  |
|  | Cable copper 3x50 mm2 for usage in 0.4KV low voltage network in Syria, according to IEC standard 60502-1 power cables, plus IEC 60228. | Manufacturer:  Brand:  Type/Model:  Catalogue reference:  Country of Origin: |  |
|  | **APPLICATION** |  |  |
|  | it applies to electrical power transmission and distribution lines for outdoor and indoor installation in damp and in wet locations |  |  |
| **A** | **DESCRIPTION OF BASIC COMPONENTS WITH TECHNICAL SPECIFICATIONS** |  |  |
|  | **General data** |  |  |
| 1 | Type: compacted stranded |  |  |
| 2 | Material: annealed copper wires (99,99% purity and not less than 100% conductivity.  The conductor shall be clean, smooth and free from foreign particles and defects. |  |  |
| 3 | Nominal cross section: 3 x 50 mm2 |  |  |
| 4 | Polyvinyl chloride |  |  |
| 5 | Inner sheath : PVC |  |  |
| 6 | Armed |  |  |
| 7. | Outer sheath: PVC |  |  |
| 7.1 | Fire retardant |  |  |
| 7.2 | Length marking at every meter interval |  |  |
| 7.3 | Color: Black |  |  |
|  | **Electrical data** |  |  |
| 8 | Rated Voltage (Uo/U) 0.6/1 KV |  |  |
| 9 | Highest System Voltage (Umax): 1.2 KV |  |  |
| 10 | Frequency: 50 Hz |  |  |
| 11 | Power frequency withstand  voltage (4 x Uo): Minimum 2.4 KV/4 hours |  |  |
| 12 | Minimum installation temperature: ≥-10°C |  |  |
| 13 | Max. conductor temperature in service:  ≥90°C |  |  |
|  |  |  |  |
| **B** | **ACCESSORIES & CONSUMABLES** |  |  |
| 1 | *NA* |  |  |
| **C** | **STANDARD REQUIREMENTS AND INSTRUCTIONS** |  |  |
| 1 | For all Tests; Sample Tests, Routine Tests and Tests after installation, reference shall generally be made to the relevant IEC 60502 and IEC 60332Standards. |  |  |
| 2 | The item offered shall be designed to operate normally under the conditions of the Implementing Entities country (Syria), i.e.:  - Altitude above sea level: 1.000 m (max.)  - Max. ambient temperature: 50°C - Min. ambient temperature: - 10°C  - Average annual temperature: 35°C - Maximal temperature variation in one day  20 °C  - Average maximum relative humidity: 80% at 30 degree C  - (Relative humidity in some site of Syria of up to 100% is possible) |  |  |
| 3 | Operating electric environment:  20 kV Distribution System   * 20 kV + 5% Three phases, three wires * Vector group of distribution transformer 20 kV/0.4 kV DYN11 * Maximum service voltage : 24 kV * Rated frequency : 50 Hz * Impulse withstand voltage level : 125 kV at 1.2/50 µs * Short circuit apparent power of the system 500 MVA * Fluctuations in supply voltage up to plus 10% to minus 15%. |  |  |
| 4 | The equipment supplied must be new with proper serial number as proof |  |  |
| 5 | User's instructions n English and in Arabic must be supplied. |  |  |
| **D** | **OPTIONS** |  |  |
| 1 | *NA* |  |  |
| **E** | **NOTE** |  |  |
| 1 | Bidders may propose any product/system, which is equivalent or better than the requirements specified above. |  |  |
| 2 | On the cable’s outer sheath the following shall be embossed at one meter interval starting from 000 against each drum length:  • ELECTRIC CABLE 600/1000V  • Cable size  • Manufacturers name  • Year of manufacturing  • Owners name as  ‘PROPERTY OF SRT FUND’  • Sequential length marking at  every meter interval starting from  000. |  |  |
| 3 | The marking on the drum must be clear and written on two sides of the drum with inerasable materials also metal label in both sides of drum including all the information. It is important to mark each drum, clearly by the following:  • contract number;  • the purchaser;  • delivery number, shipment  number;  • manufacturing date;  • name of manufacturer;  • kind of materials;  • quantities contained length;  • main technical specification ;  • cross section;  • gross weight, net weight; |  |  |
| 4 | Bidder shall furnish a clause-by-clause commentary on the requirements above in column 3 of this TSF. Bidder who comment with texts such as "Yes", "Complied", "Refer to catalogue", copying texts directly from the technical specifications form, leave any parameter line blank and/ or submit any text or content of this nature may be considered as NON-RESPONSIVE. |  |  |
| **F** | **Documentation** |  |  |
| 1 | Bidder should provide the following documents as relevant for bid submission and refer to these in column 4 of this TSF. |  |  |
| 2 | Brochures or catalogues |  |  |
| 3 | Technical data sheet |  |  |
| 4 | Copy of Test certificates as per IEC carried out by the manufacturer in the last 12 months from the deadline for the submission of the bid. |  |  |
| 5 | Documentation on relevant quality assurance systems in place |  |  |
| **G** | **Training on equipment supplied** |  |  |
| 1 | NA |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| TECHNICAL SPECIFICATION AND COMPATIBILITY TABLE | | | |
| 1 | 2 | 3 | 4 |
| No. | **ITEM NAME & DESCRIPTION**  **Cable 3x120 mm2 NYBY** | BIDDER’S OFFER | Ref. page no of Supporting Documents |
|  | **Item number: 32** |  |  |
|  | Cable copper 3x120 mm2 for usage in 0.4KV low voltage network in Syria, according to IEC standard 60502-1 power cables, plus IEC 60228. | Manufacturer:  Brand:  Type/Model:  Catalogue reference:  Country of Origin: |  |
|  | **APPLICATION** |  |  |
|  | it applies to electrical power transmission and distribution lines for outdoor and indoor installation in damp and in wet locations |  |  |
| **A** | **DESCRIPTION OF BASIC COMPONENTS WITH TECHNICAL SPECIFICATIONS** |  |  |
|  | **General data** |  |  |
| 1 | Type: compacted stranded |  |  |
| 2 | Material: annealed copper wires (99,99% purity and not less than 100% conductivity.  The conductor shall be clean, smooth and free from foreign particles and defects. |  |  |
| 3 | Nominal cross section: 3 x 120 mm2 |  |  |
| 4 | Polyvinyl chloride |  |  |
| 5 | Inner sheath : PVC |  |  |
| 6 | Armed |  |  |
| 7. | Outer sheath: PVC |  |  |
| 7.1 | Fire retardant |  |  |
| 7.2 | Length marking at every meter interval |  |  |
| 7.3 | Color: Black |  |  |
|  | **Electrical data** |  |  |
| 8 | Rated Voltage (Uo/U) 0.6/1 KV |  |  |
| 9 | Highest System Voltage (Umax): 1.2 KV |  |  |
| 10 | Frequency: 50 Hz |  |  |
| 11 | Power frequency withstand  voltage (4 x Uo): Minimum 2.4 KV/4 hours |  |  |
| 12 | Minimum installation temperature: ≥-10°C |  |  |
| 13 | Max. conductor temperature in service:  ≥90°C |  |  |
|  |  |  |  |
| **B** | **ACCESSORIES & CONSUMABLES** |  |  |
| 1 | *NA* |  |  |
| **C** | **STANDARD REQUIREMENTS AND INSTRUCTIONS** |  |  |
| 1 | For all Tests; Sample Tests, Routine Tests and Tests after installation, reference shall generally be made to the relevant IEC 60502 and IEC 60332Standards. |  |  |
| 2 | The item offered shall be designed to operate normally under the conditions of the Implementing Entities country (Syria), i.e.:  - Altitude above sea level: 1.000 m (max.)  - Max. ambient temperature: 50°C - Min. ambient temperature: - 10°C  - Average annual temperature: 35°C - Maximal temperature variation in one day  20 °C  - Average maximum relative humidity: 80% at 30 degree C  - (Relative humidity in some site of Syria of up to 100% is possible) |  |  |
| 3 | Operating electric environment:  20 kV Distribution System   * 20 kV + 5% Three phases, three wires * Vector group of distribution transformer 20 kV/0.4 kV DYN11 * Maximum service voltage : 24 kV * Rated frequency : 50 Hz * Impulse withstand voltage level : 125 kV at 1.2/50 µs * Short circuit apparent power of the system 500 MVA * Fluctuations in supply voltage up to plus 10% to minus 15%. |  |  |
| 4 | The equipment supplied must be new with proper serial number as proof |  |  |
| 5 | User's instructions n English and in Arabic must be supplied. |  |  |
| **D** | **OPTIONS** |  |  |
| 1 | *NA* |  |  |
| **E** | **NOTE** |  |  |
| 1 | Bidders may propose any product/system, which is equivalent or better than the requirements specified above. |  |  |
| 2 | On the cable’s outer sheath the following shall be embossed at one meter interval starting from 000 against each drum length:  • ELECTRIC CABLE 600/1000V  • Cable size  • Manufacturers name  • Year of manufacturing  • Owners name as  ‘PROPERTY OF SRT FUND’  • Sequential length marking at  every meter interval starting from  000. |  |  |
| 3 | The marking on the drum must be clear and written on two sides of the drum with inerasable materials also metal label in both sides of drum including all the information. It is important to mark each drum, clearly by the following:  • contract number;  • the purchaser;  • delivery number, shipment  number;  • manufacturing date;  • name of manufacturer;  • kind of materials;  • quantities contained length;  • main technical specification ;  • cross section;  • gross weight, net weight; |  |  |
| 4 | Bidder shall furnish a clause-by-clause commentary on the requirements above in column 3 of this TSF. Bidder who comment with texts such as "Yes", "Complied", "Refer to catalogue", copying texts directly from the technical specifications form, leave any parameter line blank and/ or submit any text or content of this nature may be considered as NON-RESPONSIVE. |  |  |
| **F** | **Documentation** |  |  |
| 1 | Bidder should provide the following documents as relevant for bid submission and refer to these in column 4 of this TSF. |  |  |
| 2 | Brochures or catalogues |  |  |
| 3 | Technical data sheet |  |  |
| 4 | Copy of Test certificates as per IEC carried out by the manufacturer in the last 12 months from the deadline for the submission of the bid. |  |  |
| 5 | Documentation on relevant quality assurance systems in place |  |  |
| **G** | **Training on equipment supplied** |  |  |
| 1 | NA |  |  |

4. Drawings

These Bidding Documents includes pictures. The pictures are inserted in the Technical specifications.

5. Inspections and Tests

The following inspections and tests shall be performed:

**TESTING:**

**Generators and Transformers:**All generators and transformers shall be tested “Routine tests” in according toIEC 60204-IEC 60034 - IEC 60072 for generators and IEC60076 for transformers by the manufacturer himself with a test certificate provided. In addition, at least one generator and transformer per each type of transformer to be procured shall be tested by an independent laboratory certified according to the legislation of Turkey. In case the transformers are produced by a Turkish manufacturer, each transformer to be tested will be selected by an SRTF representative that will also indicate the transformers to be delivered. In case the transformers are produced outside Turkey, each transformer to be tested will be selected out of the lot of transformers available at the supplier and ready for the delivery to Syria. The test to be carried out shall be according to IEC60076 and the cost of the test shall be paid by the supplier.

**Other equipment and material**

The cables and electrical panels shall be tested by the manufacturer with a test certificate provided. Other test on a sample basis before or after installation may be carried out and paid by the purchaser.

**INSPECTING**

All equipment and material will be inspected for completeness and compliance in combination with above tests.

After the equipment has been delivered and subject to positive acceptance inspection, acceptance will be issued by the Purchaser to the Supplier as soon as possible and not later than 30 days after delivery.

PART 3 - Contract

Section VII: General Conditions of Contract

This section is available under [www.srtfund.org](http://www.srtfund.org) in the procurement section of the web site under ICB goods.

Section VIII: Special Conditions of Contract

|  |  |
| --- | --- |
| The following Special Conditions of Contract (SCC) shall supplement and / or amend the General Conditions of Contract (GCC). Whenever there is a conflict, the provisions herein shall prevail over those in the GCC. | |
| **GCC 1.1(j)** | The Recipient’s country is: Syria |
| **GCC 1.1(k)** | The Purchaser is (1):  Several Implementing Entities represented by SRTF Yönetim Hizmetleri A.S., Turkey. The official name of purchaser will be determined in contracting phase.  (1) Please note: the Purchaser shall be responsible and liable for the Purchaser’s obligations in the execution of any resulting contract”.  Also in case SRTF Yönetim Hizmetleri A.S. signs the Contract on behalf of and in the name of the Purchaser, the Purchaser is responsible and liable for the Purchaser’s obligations in the execution of the Contract. |
| **GCC 1.1 (p)** | The Project Site(s)/Final Destinations shall be determined in the contracting phase. |
| **GCC 4.2 (b)** | The version edition of Incoterms shall be Incoterms 2010 |
| **GCC 5.1** | The language shall be: English |
| **GCC 8.1** | For **notices**, the Purchaser’s address shall be:  Attention: Head of the Procurement Section of the SRTF  Street Address: Budak Mah.Gazi Muhtar Pasa Blv. 10031 Sk. YASEM Is Mrk. No 42/804 – Sehitkamil/Gaziantep*]*  Floor/ Room number*: 804*  City: Gaziantep  Postal Code: 27090  Country: Turkey  Telephone: +90 (342) 2903692  Fax number: +90 (342) 5011659  Electronic mail address: [procurement@srtfund.org](mailto:procurement@srtfund.org) |
| **GCC 10.2** | All disputes arising in connection with the present Contract shall be finally settled under the Rules of Conciliation and Arbitration of the International Chamber of Commerce by one or more arbitrators appointed in accordance with said Rules. |
| **GCC 13.1** | Details of Shipping and other Documents to be furnished by the Supplier are:   1. Two copies of the detailed Supplier's invoice showing goods description, quantity, unit price, total amount; 2. One original of consignment note or other transport document as applicable (‘depending in way of transport: waybill, bill of lading or airway bill); 3. Two copies of detailed packing list identifying contents of each case or package; 4. One original of the manufacturer’s or Supplier’s Warranty Certificate covering all items supplied; 5. Certificate of origin of goods; 6. Two Copies of Insurance certificates; valid for the period till delivery.   The above documents shall be received by the Purchaser before arrival of the Goods and, if not received, the Supplier will be responsible for any consequent expenses. |
| **GCC 15.1** | The prices charged for the Goods supplied and the related Services performed shall not be adjustable. |
| **GCC 16.1** | The method and conditions of payment to be made to the Supplier under this Contract shall be as follows:  Payment shall be made in (*state currency/ies)* in the manner stated below.  Payment shall be made by bank transfer. For a Syrian Supplier, exceptionally payment may be made in cash, but only if this is demonstrably unavoidable to the satisfaction of Syria A.S. due to reasons not related to the Supplier.   * + - 1. **Pre-payment:** If so requested by the Supplier,forty (40) percent of the Contract Price shall be paid within thirty (30) days of signing of the Contract, and upon submission of claim and a bank guarantee for equivalent amount valid until the Goods are delivered and in the form provided in the bidding documents or another form acceptable to the Purchaser.       2. **On Delivery:** If pre-payment was made, forty five (45) percent of the Contract Price of Goods received shall be paid as soon as the goods are loaded on the truck of the purchaser as soon as the Purchaser confirms their delivery. If no pre-payment was made the applicable percentage is eighty five (85) percent.       3. **On Acceptance:** Fifteen (15) percent of the Contract Price of Goods received shall be paid within thirty (30) days of receipt of the Goods upon submission of claim supported by the acceptance certificate issued by the Recipient and Purchaser, if different from the Recipient. |
| **GCC 16.5** | The payment-delay period after which the Purchaser shall pay interest to the supplier shall be 60days.  The interest rate that shall be applied is 3%. |
| **GCC 18.1** | A Performance Security shall be required, except as provided in the last paragraph of this clause.  The amount of the Performance Security shall be: 10% of the contract price |
| **GCC 18.3** | If required, the Performance Security shall be in the form of: a Bank Guarantee as per the format provided in Section IX of the bidding documents.  If required, the Performance security shall be denominated in the currencies of payment of the Contract, in accordance with their portions of the Contract Price and shall be valid till 45 days after the scheduled end of the warranty period. |
| **GCC 23.2** | The packing, marking and documentation within and outside the packages shall be as follows:  In addition to the requirement included in the technical specifications, all packages should be marked with the following information:  BID-090-GOO-ICB/15   1. Three originals and two copies of the Supplier's invoice showing goods description, quantity, unit price, total amount; 2. One original of consignment note or other transport document as applicable; 3. Two copies of packing list identifying contents of each case or package; 4. Two copies of manufacturer's test certificates and other test certificates; 5. Certificate of origin of goods; 6. Two Copies of Insurance certificates; valid for the period till delivery; 7. Any other relevant document for the custom procedures. |
| **GCC 24.1** | The insurance coverage shall be as specified in the Incoterms*.* |
| **GCC 25.1** | Responsibility for transportation of the Goods shall be as specified in the Incoterms. |
| **GCC 26.1** | The following inspections and tests shall be performed:  **TESTING:**  **Generators and Transformers:** All generators and transformers shall be tested “Routine tests” in according toIEC 60204-IEC 60034 - IEC 60072 for generators and IEC60076 for transformers by the manufacturer himself with a test certificate provided. In addition, at least one generator and transformer per each type of transformer to be procured shall be tested by an independent laboratory certified according to the legislation of Turkey. In case the transformers are produced by a Turkish manufacturer, each transformer to be tested will be selected by an SRTF representative that will also indicate the transformers to be delivered. In case the transformers are produced outside Turkey, each transformer to be tested will be selected out of the lot of transformers available at the supplier and ready for the delivery to Syria. The test to be carried out shall be according to IEC60076 and the cost of the test shall be paid by the supplier.  **Other equipment and material**  The cables and electrical panels shall be tested by the manufacturer with a test certificate provided. Other test on a sample basis before or after installation may be carried out and paid by the purchaser.  **INSPECTING**  All equipment and material will be inspected for completeness and compliance in combination with above tests.  After the equipment has been delivered and subject to positive acceptance inspection, acceptance will be issued by the Purchaser to the Supplier as soon as possible and not later than 30 days after delivery. |
| **GCC 26.2** | The Inspections and tests shall be conducted at the supplier. |
| **GCC 27.1** | The liquidated damage shall be: (0.05%) of the price of the delayed goods and/or services per calendar day.  The maximum amount of liquidated damages shall be: (10%) of the price of the delayed goods and/or services. |
| **GCC 28.3** | The period of validity of the Warranty shall be: 12 months  For purposes of the Warranty, the place(s) of final destination(s) shall be Turkish Syrian border determined at dispatch. |
| **GCC 28.5** | The period for repair or replacement shall be: 60 days. |

Section IX: Contract Forms

**Table of Content**

[1. Contract Agreement 234](#_Toc432414043)

[2. Performance Security 236](#_Toc432414044)

[3. Bank Guarantee for Advance Payment 237](#_Toc432414045)

1. Contract Agreement

*[The successful Bidder shall fill in this form in accordance with the instructions indicated]*

THIS CONTRACT AGREEMENT is made on the ------ day of ------- month of 2014

BETWEEN

(1) (………………)

(2) other party – PLEASE INSERT NAME, ADDRES AND OTHER DETAILS

WHEREAS the Purchaser invited bids for heavy equipment and trucks and has accepted a Bid by the Supplier for the supply of those Goods in the sum of *[insert Contract Price in words and figures, expressed in the Contract currency(ies)**]* (hereinafter called “the Contract Price”).

NOW THIS AGREEMENT WITNESSETH AS FOLLOWS:

1. In this Agreement words and expressions shall have the same meanings as are respectively assigned to them in the Conditions of Contract referred to.

2. The following documents shall constitute the Contract between the Purchaser and the Supplier, and each shall be read and construed as an integral part of the Contract:

1. This Contract Agreement
2. Special Conditions of Contract
3. General Conditions of Contract
4. Technical Requirements (including Schedule of Requirements and Technical Specifications Compatibility Table) as accepted based upon bid evaluation
5. The Supplier’s Bid and original Price Schedules as accepted based upon bid evaluation
6. The Purchaser’s Notification of Award
7. *[Add here any other document(s)]*

3. This Contract shall prevail over all other Contract documents. In the event of any discrepancy or inconsistency within the Contract documents, then the documents shall prevail in the order listed above.

4. In consideration of the payments to be made by the Purchaser to the Supplier as hereinafter mentioned, the Supplier hereby covenants with the Purchaser to provide the Goods and Services and to remedy defects therein in conformity in all respects with the provisions of the Contract.

5. The Purchaser hereby covenants to pay the Supplier in consideration of the provision of the Goods and Services and the remedying of defects therein, the Contract Price or such other sum as may become payable under the provisions of the Contract at the times and in the manner prescribed by the Contract.

IN WITNESS whereof the parties hereto have caused this Agreement to be executed in accordance with the laws of Germany on the day, month and year indicated above.

For and on behalf of the Purchaser

Signed: *[insert signature]*

in the capacity of *[ insert title or other appropriate designation ]*

in the presence of *[insert identification of official witness]*

For and on behalf of the Supplier

Signed: *[insert signature of authorized representative(s) of the Supplier]*

in the capacity of *[ insert title or other appropriate designation ]*

in the presence of *[ insert identification of official witness]*

2. Performance Security

**Standard Form of a Performance Bond (Performance Security)**

|  |
| --- |
| Address of guarantor bank: …………………………………………………………………  …………………………….………………………………………………………………….. |
| Address of beneficiary (contracting agency): ………………………………………………  …………………………………………………………………..…………………………… |

On ...................................... you concluded with ................................................. ("Contractor") a contract for ................................................................. (project, object of contract) at a price of .................................................................

In accordance with the provisions of the contract the Contractor is obligated to provide a performance bond for … % of the contract price.

We, the undersigned ……………………….. (Guarantor), waiving all objections and defences under the aforementioned contract, hereby irrevocably and independently guarantee to pay on your first written demand an amount up to a total of ........................................... (in words: .............................................................)

against your written declaration that the Contractor has failed to duly perform the aforementioned contract.

In the event of any claim under this guarantee, payment shall be effected to KfW, Frankfurt am Main (BIC: KFWIDEFF, BLZ 500 204 00), account no. 38 000 000 00 (IBAN: DE53 5002 0400 3800 0000 00) for account of ........................................ (project-executing agency/purchaser).

This guarantee shall expire no later than …………………………………….

By this date we must have received any claims for payment by letter or encoded telecommunication.

It is understood that you will return this guarantee to us on expiry or after payment of the total amount to be claimed hereunder.

This guarantee is governed by the laws of ……………………….

........................................................... .................................................

Place, date Guarantor

3. Bank Guarantee for Advance Payment

**Model Advance Payment Bank Guarantee**

|  |  |
| --- | --- |
| Address of guarantor bank: …………………………………………………………………  …………………………….………………………………………………………………….. |  |
| Address of beneficiary (contracting agency): ………………………………………………  …………………………………………………………………..…………………………… |  |

On ........................................... you concluded with (name and full address) ...........................................................................……………………………………………… (“Contractor”) a Contract for ......................................................... (project, subject of Contract) for the sum of .............................................

According to the provisions of the Contract the Contractor receives an advance payment in the amount of ............................ equalling....................... percent of the contract price.

We, the undersigned.................................................... (bank), waiving all objections and defences under the aforementioned Contract, hereby irrevocably and independently guarantee to pay on your first written demand any amount advanced to the Contractor up to a total of .............................................. (in words: .............................................................)

against your written declaration that the Contractor has failed to perform as stipulated in the aforementioned Contract.

This Guarantee shall enter into force as soon as the advance payment has been credited to the account of the Contractor.

This Guarantee shall be automatically reduced pro rata in accordance with the payments performed.

In the event of any claim under this Guarantee, payment shall be effected to KfW, Frankfurt am Main (JBIC.: KFWIDEFF, BLZ 500 204 00), account no. 38 000 000 00 (IBAN: DE53 5002 0400 3800 0000 00) for the account of ........................................ (Purchaser, project-executing agency).

This guarantee shall expire not later than .......................... by which date we must have received any claims by letter or coded telecommunication

It is understood that you will return this Guarantee to us upon expiry thereof or after settlement of the total amount to be claimed hereunder.

............................................. ...............................................................

Place, date Guarantor

1. Please note: usually the purchaser, the recipient and the beneficiary are the same organisation, however in some cases the procurement procedure will be carried out by the SRTF Yönetim Hizmetleri A. Ş., Turkey on behalf and in the name of the beneficiary/recipient organisation(s). In such cases, this information will be provided in the contractual phase. [↑](#footnote-ref-1)
2. *In this context, any action taken by a bidder, supplier, contractor, or any of its personnel, agents, subcontractors, sub-consultants, service providers, suppliers and/or their employees to influence the procurement process or contract execution for undue advantage is improper.* [↑](#footnote-ref-2)
3. *“Another party” refers to a public or private sector official acting in relation to the procurement process or contract execution. In this context, “official” includes IE, SRTF and KfW staff and employees of other organizations taking or reviewing procurement decisions.* [↑](#footnote-ref-3)
4. *“Party” refers to a public or private sector official; the terms “benefit” and “obligation” relate to the procurement process or contract execution; and the “act or omission” is intended to influence the procurement process or contract execution.* [↑](#footnote-ref-4)
5. *“Parties” refers to participants in the procurement process (including public officials) attempting to establish bid prices at artificial, non- competitive levels.* [↑](#footnote-ref-5)
6. *“Party” refers to a participant in the procurement process or contract execution.* [↑](#footnote-ref-6)