**United Nations Development Programme**

**Addendum No. 1 dated 3 April 2017** [ ITB-2017-075]

**Pre-bid Meeting Minutes – Addendum No 1**

**PAL10-00099398 : ITB-2017-075 - Rehabilitate GIE Infrastructure / Package #2 - External Lighting**

**Issue Date: 20 March 2017**

**Closing Date & time: 13 April 2017 @ 12.00 P.M.**

**Extended Closing Date & time: N/A**

Dear Bidders,
This correspondence pertaining to the above-mentioned project should be considered as an integral part of the tender documents. Below please find the UNDP/PAPP clarifications and an official reply to all inquiries raised by participant bidders following the pre-bid meeting/site visit which was held on **28 March 2017.**
The following clarifications are considered as Addendum No. 1 to the Invitation to Bid, which shall be deemed to form and be read as part of the tender:

1. All participating Bidders shall provide all Evaluation Criteria Requirements as shown in the Invitation to Bid.
2. Unit rate in US$ not including VAT.
3. Unit prices shall include any Bank Charges due to payments transfer.
4. Contractors shall provide labor insurance with an amount of 15% of the contract value, all as per resulting contract terms and conditions. Also, the project insurance must include all materials (the steel and electrical material) with its values in US$.
5. The delay penalties will be deducted from each payment made to the contractor of an amount of USD 200 for each day of delay in accordance to the approved time schedule for the project and updates. If the contractor doesn't comply to the approved time frame schedule UNDP is entitled to terminate the contract without any financial obligations resulting from termination of the contract process.
6. Payments to the contractors will be according to the submitted cash flow diagram.
7. All imported materials or equipment, submitted by the contractor as substitute to the specified, will be accepted and considered equally approved as long as they are:
   - ☒ equal in quality, durability and efficiency, all to UNDP engineer judgment.
   - ☒ represented in the country by a reputable, qualified and credible agent.
8. Winning Contractor will be responsible for the submission of safety procedure plan for approval. Safety measures are an important part of the project. All workers, engineers and visitors on site shall use safety tools and wear Safety uniforms, to be all in accordance with contract Safety requirements (Section 12 of the ITB) and UNDP' Engineer instructions. The bidders shall include in their prices the provision of the necessary insurances for the project in accordance with the general terms and condition of contract, and enough to cover the expected risk in the works. As per clause 23 of the general conditions, the contractor is obligated to furnish the insurance policies before commencing the Works.
9. Working hours in the project is from 8 a.m. to 3 p.m. Sunday through Thursday. Any extension of time will not be authorized unless presented in the work plan and approved by UNDP supervisor.
10. Bidders shall furnish actual price analysis for all items in the Bill of Quantities, cash flow and time schedule.
11. The Winning Contractor shall be responsible for installing and fixing two (2) signboards for each lot, of size 350x200cm to be located on places indicated by UNDP Site Engineer. At the end of project, the

contractor will install one Karara marble board for each site location, of size 120x 100x 3 cm including all logos and necessary engraved text to be installed on each site.

12. The contractor shall consider gender equality when recruiting its technical staff.
13. Mobilization period is seven days and works must start immediately.
14. The contractor must directly start the purchase of all materials in the bill of quantities within 20 days from receiving the approval of materials, and he must provide the UNDP with all the required documents which confirm the purchase of materials with invoices and LC of the bank. In case the contractor has delayed in issuance of purchase order for the materials, UNDP has the full right to terminate the contract without bearing financial implications.
15. In case UNDP imposes suspension longer than one (1) month on the project, only the following will be paid for:
    - Security guard for the project if needed.
    - Cost of extension of insurance policy and bank guarantees.
    - Salary of the project manager.

    All project equipment will not be compensated for, as well as any incurring costs related to staff or subcontractors. The maximum period of suspension will not be more than 60 days at maximum. When suspension is released, the Contractor will be allowed seven (7) days for re-mobilization and the period of contract will be extended accordingly.
16. UNDP has the right to exclude any bidder who has current workload that may put the implementation of the project under high risk.
17. UNDP confirms that the technical staff should be engaged on site on full time basis and have the sufficient experience and capabilities of carrying out their duties. UNDP will deduct the amount of US$ 25 for each day of the absence of any member of technical staff in the interim payments to the contractor and these discounts non-refundable.
18. The contractor shall take his precautions during the excavation for the foundation so that the existing infrastructure and facilities are not damaged. In case any damage occurred to the infrastructure and facilities, the contractor should remedy this damage on his own expense.
19. The contractor should take into his consideration the local market price for all construction materials (ABC row materials, Cement, Aggregate, Base Course…etc) & civil works with the same specification mentioned in the contract. And the winning contractor must secure all construction materials from the local markets within the mobilization period and store them in his stores or in stores at site.
20. Securing the construction materials such as aggregate, cement, bitumen, base course ...etc. is the contractor's responsibility from the local markets.
21. In case the contractor will supply dual use materials through the UNDP Access Coordination Unit. UNDP will calculate the differences on the materials and apply deductions based on the submitted price analysis by the contractor for all items.
22. In case of UNDP will facilitate the coordination of access to materials required for the project (dual-use materials such as cement, M.V Disconnector switchs, M.V and L.V cables, Lighting pole , Lighting fixtures, accessories or any other materials), the contractor will follow the procedures of the UNDP as following:
    A- The Wining Contractor shall secure all materials within the mobilization period and store them in UNDP stores. The quantities delivered to the site will not exceed the consumption of activities for one day. All relevant transport expenses are deemed included within the unit price of items.

    B-The Contractor shall provide an accurate inventory of the quantities of materials that need coordination and of dual-use previously mentioned to be reviewed and approved by the United Nations Development Programme UNDP.

    C- Before giving the order to commence work, a plan of action for the supply of materials in batches adequate with the implementation schedule of activities at the site. The time

between the entry of materials and their use in the project work for should not exceed two weeks. The materials will be transferred under the supervision of UNDP to UNDP stores at Karni industrial zone where it will be stored and will be discharged according to the work plan and schedule only in the quantities needed for work. The coordination process of the materials will be done in stages such that not to exceed the time limit for the use of materials in two weeks. Cement will be stored specifically in UNDP stores in Karni industrial zone and is used as needed to work the quantity per day so as not to keep any amount of cement outside UNDP stores beyond the daily project work is completed. It is not allowed for any amount of cement to stay at the work site or factory after the completion of the daily works and the contractor shall transfer the remaining cement to the UNDP stores in Karni at his own costs.

D- The contractor shall not be allowed to use the dual-use items without taking the written consent and under the clear and comprehensive control of UNDP engineers and UNDP team of coordination for materials. A comprehensive action coordination plan within the concrete factories and site with all approved documentation for the process of using the material will be prepared to constitute the allocated measures to be followed in that regards.

E- In case of defected dual use materials, the contractor will prepare a plan for disposal. He will only implement the plan after authorized control, monitoring and documentation of UNDP access coordination team and after taking approvals on where and how to dispose of these materials.

F- The Contractor is fully responsible for any costs related to materials' upload, download at the Israeli border crossings such as Karim Shalom and the UNDP stores in Karni industrial zone. In addition, he will be bearing all costs of the transport of materials from the warehouse at the Karni to different work sites in the project or to approve factories if necessary that are expected on daily basis at the time of utilizing dual use materials. The above-mentioned costs include expenses of equipment and labour used in the loading and unloading.

G- UNDP access and supervision teams will be monitoring and examining the materials used in the manufacturing and job mixing ratios to ensure the quality of the mixture at the manufacturing factories and the Contractor will facilitate the task of the engineers inside theses factories.

23. The contractor shall submit commitment (stamp and signature) to preserve the material within the site or factories. In case of any violations or misuse of dual use materials accessed UNDP without prejudice will terminate the contract and the contractor will be excluded from involvement in projects of UNDP in the future.
24. The contractor will carry out different concrete Job mixes for each type of concrete within the project B350, B300, B250, B200 to achieve the requirements of the relevant technical specification. The contractor will include the costs for the tests within the different items prices. In any case, if the cube results at 28 days is less the nominated strength of 350, 300, 250 and 200 Kg/cm2 respectively, the cast items will be removed then recast all on the sole expenses of the contractor.
25. The Contractor is fully responsible for the protection and preservation of the quantities supplied materials, either on-site or factories. The Contractor shall bear all relevant costs in that regards.
26. In the items of excavation and backfilling, the contractor should consider the existing level of natural ground on site and the different levels in the buildings.
27. Contractor's previous and/or current performance with UNDP and any other organization is one of the main criteria in the evaluation of the contractors and can be a strong basis for refusing the bid.
28. The site visit was conducted in the same day of pre-bid meeting with the presence of PIEFZA.
29. Any dismantled materials including poles, cables, tiles, Base Course and interlock must be carefully collected from the site and transfer it to the PIEFZA warehouses at his expense if these materials were required.

30. Any debris and unused materials resulted from activities should be transferred to dump site or any location is directed by the engineer.
31. The contractor should submit detailed work plan includes traffic plan, working hours, safety measures, materials storage area, method of disposal of rubble safely and concrete works in the trenches to take the approval of the supervisor engineer in coordination with the authorized partners & stakeholders.
32. After completion of the project, the contractor must submit as built drawings on computer CD (3No.s Auto Cad) and three copies of prints (A2).
    Also, the contractor should contract with one of the certified GIS (surveying) offices to survey all projects elements for the work taking into consideration the following:
    - The contractor must take into consideration that the total station device must be available all the time and upon the needed of the supervision engineer.
    - Surveying should be accomplished using accurate GPS receivers or Total station.
    - All project elements should have x,y,z coordinates along with attribute information.
    - The attribute information will be identified in coordination with Project Owner and UNDP.
    - The coordinates should be referenced to the coordinate system adopted by the relevant local authorities.
    - All surveying works should conform to the accuracy standards adopted by the relevant local authorities and UNDP.
    - Two formats of measurements should be submitted: one in AutoCAD format (*.dwg) and another in GIS format (ArcGIS Geodatabase *.gdb)
33. The contractors must coordinate and arrange with all responsible partiers such as PIEFZA, GEDCO, PENRA, PIEDCO, Municipality, Authorities, ministries, Pal Tel, …..etc regarding to the daily work activities and the paths of the proposed electrical networks. Moreover, UNDP will not be held liable for any contractual claims arising out or in connection with sequences of land acquisition along the planned paths of the electrical network as well as the problem with factories owners and investors or PIEFZA. the contractor is responsible to perform the required tasks and must abide to local rules and norms at his expenses. UNDP will not bear any responsibility to such arrangements. The focal person contacts from PIEFZA is Mr. BaJes Al Dalow , Phone / 0599712371.
34. The contractor is responsible to make all the arrangements and coordination's with PIEFZA & GEDCO in regards to the schedule hours of the disconnect and reconnect the electricity and must be considered in the time frame schedule. UNDP will not bear any responsibility to such arrangements.
35. The contractors must conduct all the investigations such as bore holes along the overhead or underground paths at his expense during the implementation in order to avoid any damage to the existing facilities and public utilities.
36. The contractor must carefully collect the Base Course that resulted from the excavation from the site and transfer it to the PIEFZA warehouses at his expense.
37. There is a possibility to change the track or location of the networks in some areas, but the new locations of the proposed electricity networks will be determined before signing of the contract. Accordingly, the Offerors must take this into their consideration while pricing all the items and no claims will be accepted in this regard.
38. The contractor is prevented to hire any employee of the electricity distribution company GEDCO or the energy authority PENRA within his technical crews or work with him as a part time after office hours.
39. All technical staff from the contractor side will be adopted and approved by the supervision team before starting the works, and the contractor shall provide a project engineer (Civil) with experience from 7 years , Electrical site engineer 5 years, and civil site engineer 5 years and all of them have previous experience in underground medium voltage electricity networks. Also, the technicians must

be capable of implementing and connecting end termination kits and joints for all types of underground cables and approved by GEDCO.

40. The Contractor must provide a full analysis of cost of materials and should be presented in a separate line for each item separately and submit the schedule for the amounts of concrete used in the project.
41. The Contractor must provide work plan explaining all the work activities (supplying & installation) in parallel so that he can finish in the specified time frame of the project.
42. The Contractor shall take the written approval from the supervisor engineer when he wants to start the works for each activity in the project. In case that the contractor is uncommitted, the supervisor has right to reject all the works according to the instructions.
43. The Contractor shall comply with the specifications for all technical civil and electrical works and the preservation of the environment and public safety of the closure of work sites during the drilling and the extension and put up signs to clarify the drilling areas to avoid falls and accidents.
44. After receipt of materials from UNDP warehouse, the materials were under the contractor's responsibility, and need to be stored and secured in the stores and thus the contractor will bear any damage that may occur to the material in the stores or on-site.
45. For the Underground cables, the contractor will receive complete rolls of cables after making all necessary inspections from GEDCO in the UNDP warehouse, then it will move to the site or to the contractor's store. The contractor is responsible to make the inspections on the underground cables after the installation.
46. In emergency cases or in temporary stop of the work or when the project has canceled, the contractor will move all the remaining materials to UNDP stores without claiming and without any additional cost.
47. If the contractor cannot hire a specialist technician or engineer to connect the termination kits or straight joints for the underground cables, GEDCO will provide price offer to the contractor to make the job by its staff. In case the technician fails to make the termination kits to the satisfaction of the engineer, it will be totally removed on the contractor's expenses.
48. The contractor should include in the pricing the cost for making inspections and must do all tests for all existing underground cables and equipment in the presence of GEDCO, UNDP & PENRA before starting works using the required tools for inspection. In case these tools are not available, GEDCO will make the inspection using its tools and the contractor will cover all cost.
49. The Contractor shall take the written approval from the supervision engineers from UNDP, GEDCO and municipality for the site work for the project and make sure that all the materials for the project were received. In case that the contractor is uncommitted, he will be fully responsible on it. The contractor shall coordinate with PIEFZA representative to have the required permits to work on the GIE.
50. The winning contractor is responsible for obtaining at his own risk and expense any export/import licenses or other official authorization and carry out all customs formalities necessary for the export/import of the goods. **UNDP will be only responsible for obtaining the approvals on VAT exemption from the relevant authorities.**
51. The Contractor must provide all attached tender documents for the technical evaluation, such as (technical guarantees), Drawings, Original Catalogues for the equipment's, country of origin certificate for all materials especially for the lighting poles and fixtures. the materials indicating the proposed type in Catalogues with reference tag number and must be stamped by the manufacturer and the supplier.
52. The contractor must provide all required Routine and Type Test Reports with new dates not less than 5 years for all the materials , equipment and stamped by manufacturer and supplier.
53. The contractor must provide FAT certificates for the hot dip galvanized steel lighting poles (one certificate for each 10 poles before supplying).

**United Nations Development Programme**

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54. The contractor must provide hot stamping for all cables and metal plate for all other equipment's such lighting poles and others with the name of the beneficiary UNDP/PIEFZA.
55. The contractor should include in the price dismantling and removal of any damaged external lantern, poles, cables, surplus materials, etc or any equipment, then transport to locations nominated by engineer.
56. **Item no (1.9)/ 36 kV Isolating Switch / the required type is ELCO or equivalent.**
57. **Item no (2.1)/ XLPE Aluminum Conductor Cable 400 mm2 / the required type of conductor is Aluminum and attached technical guarantee for the item.**
58. **Item no (3.2)/ street lighting lantern LED type 120w/ the item includes all required NYY cables 3*2.5 mm2, connecting cable from terminal board at the bottom of the pole to the lantern , and all needed materials and workmanship to complete the job. And, the price includes remove all the old materials in the existing poles.**
59. **Item no (3.3)/ street lighting lantern unit 400W-HPS-220V/ the quantities for this item will be <u>60 Nos.</u>**

**Interested bidders shall acknowledge receipt of this addendum/pre-bid minutes by returning/including it, signed and stamped, with their bids.**

For your kind attention and reference,

Sincerely Yours,

Khaled Shahwan
Deputy Special Representative (Operations)

# Technical Guarantees For Electrical Materials & Equipments

# Technical Guarantees No. IS_36

## 36 Kv, 3-phase Outdoor Isolating Switch With Built-In Arc Interruption

| No | Description | Unit | Requirements | Offered Data | Notes, Remarks , Ref to Documentation | Evaluation Committee Comments |
|---|---|---|---|---|---|---|
| 1 | Name of Manufacturer | | ELCO | | | |
| 2 | Country of Origin | | ISRAEL | | | |
| 3 | Standards | | IEC60129 & IEC60265-1 | | | |
| 4 | Rated Voltage | kV | 36 | | | |
| 5 | Design and Operating | | Manual Isolating Switch under load having capability of frequent switching | | | |
| 6 | All Ferrous Parts Material | | Hot Galvanized Steel | | | |
| 7 | Pole No. | | 3 | | | |
| 8 | Safe Operating Zone Temperature | °C | -10 to +55 | | | |
| 9 | Rated Frequency | Hz | 50 | | | |
| 10 | **Arc Interruption** | | | | | |
| | Name of Manufacturer | | | | | |
| | Country of Origin | | | | | |
| | Type | | Heavy Duty | | | |
| | Operating | | without an External Arc or Flame Conforming to IEC 60265 | | | |
| | Installation | | Hard Fixed and not Able to Rotate | | | |
| 11 | **Insulators** | | | | | |
| | Name of Manufacturer | | | | | |
| | Country of Origin | | | | | |

# Technical Guarantees No. IS_36

## 36 Kv, 3-phase Outdoor Isolating Switch With Built-In Arc Interruption

| No | Description | Unit | Requirements | Offered Data | Notes, Remarks , Ref to Documentation | Evaluation Committee Comments |
|---|---|---|---|---|---|---|
| | a) Material | | Polymer | | | |
| | b) Creepage Distance | mm | 1050 | | | |
| 12 | Continuous Current Capacity | A | 630 | | | |
| 13 | Rated Peak withstand Current | KA | 31.5 | | | |
| 14 | Rated Short Time Current (1 sec Duration) | KA | 12.5 | | | |
| 15 | **Rated Lightning Impulse withstand Voltage** | | | | | |
| | a) Standard Impulse with Stand Voltage to Earth (1.2/50 μs Full Wave) | kV | 170 | | | |
| | b) Between Poles Across Isolating Distance | kV | 190 | | | |
| 16 | **Rated One Minute Power Frequency withstand Voltage in Dry and Wet Conditions** | | | | | |
| | a) Power Frequency Test Voltage to Earth | kV | 75 | | | |
| | b) Between Poles Across Isolating Distance | kV | 100 | | | |
| 17 | Minimum Clearance Between Phase and earth | mm | shall be filled by manufacturer | | | |
| 18 | Minimum Clearance Between Phases | mm | shall be filled by manufacturer | | | |
| 19 | Mechanical Operations | C/O | ≥1000 | | | |
| 20 | Electrical Operations Under 400A load | C/O | shall be filled by manufacturer | | | |
| 21 | Short Circuit Electrical Operations | C/O | shall be filled by manufacturer | | | |
| 22 | Installation and operating accessories | | Required | | | |

# Technical Guarantees No. IS_36

## 36 Kv, 3-phase Outdoor Isolating Switch With Built-In Arc Interruption

| No | Description | Unit | Requirements | Offered Data | Notes, Remarks , Ref to Documentation | Evaluation Committee Comments |
|---|---|---|---|---|---|---|
| 23 | Master Key Lock Body | | Chrome-plated solid brass | | | |
| 24 | Master Key Lock U-Shackle | | Boron-steel alloy | | | |
| 25 | Type Test Certificates/Reports from internationally reputed testing agency (According IEC 694 and IEC 265-1) | | Required | | | |
| 26 | Acceptance & Routine tests witnessed by Beneficiary | | Required | | | |
| 27 | Switch Parts, Accessories and All Dimensions | | As Attached Drawing No IS_36 | | | |

Tenderer's Signature : ……..… Date: ……

# Technical Guarantees No. IT24_400

## 630A , 24 kv Indoor Screened Separable Termination Kit for 12/20 kv XLPE Cable 1x400/35 $mm^2$

| No | Description | Unit | Requirements | Offered Data | Notes, Remarks , Ref to Documentation | Evaluation Committee Comments |
|---|---|---|---|---|---|---|
| 1 | Name of Manufacturer | | | | | |
| 2 | Country of Origin | | | | | |
| 3 | Reference Manufacturing Standards | | CENELEC HD629.1 S2, HD506 S1 , DIN47636, EN50180 and EN50181 | | | |
| 4 | Max. Service Voltage (Um) | kV | 24 | | | |
| 5 | Design | | Separable Tee Shape Connector | | | |
| 6 | Material | | Cross linked EPDM | | | |
| 7 | Cable and Conductor Type | | Single Core Conductor Cable with Copper Wire Shield | | | |
| 8 | Cable Insulation Type / Thickness | | XLPE/5.5mm | | | |
| 9 | Conductor Cross Sectional Area | $mm^2$ | 400 | | | |
| 10 | Current Carrying Capacity | A | 630 | | | |
| 11 | Basic Impulse Level | kV | 170 | | | |
| 12 | Partial discharge at 2 U0 | | < 10 Pc | | | |

# Technical Guarantees No. IT24_400

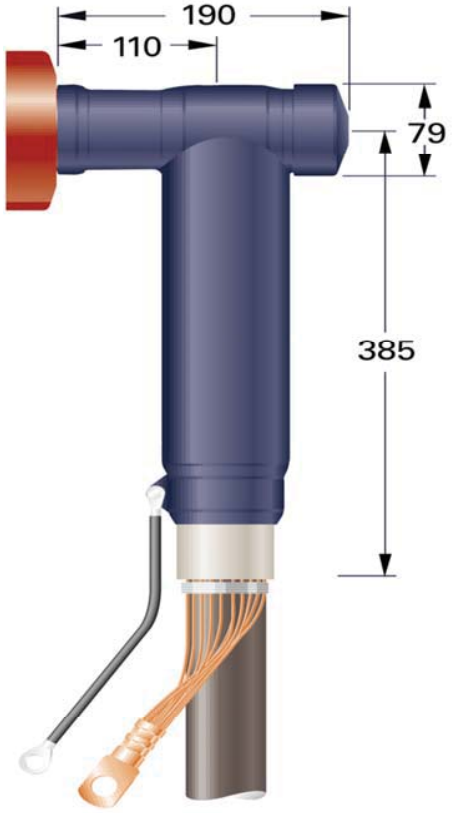
## 630A , 24 kv Indoor Screened Separable Termination Kit for 12/20 kv XLPE Cable 1x400/35 $mm^2$

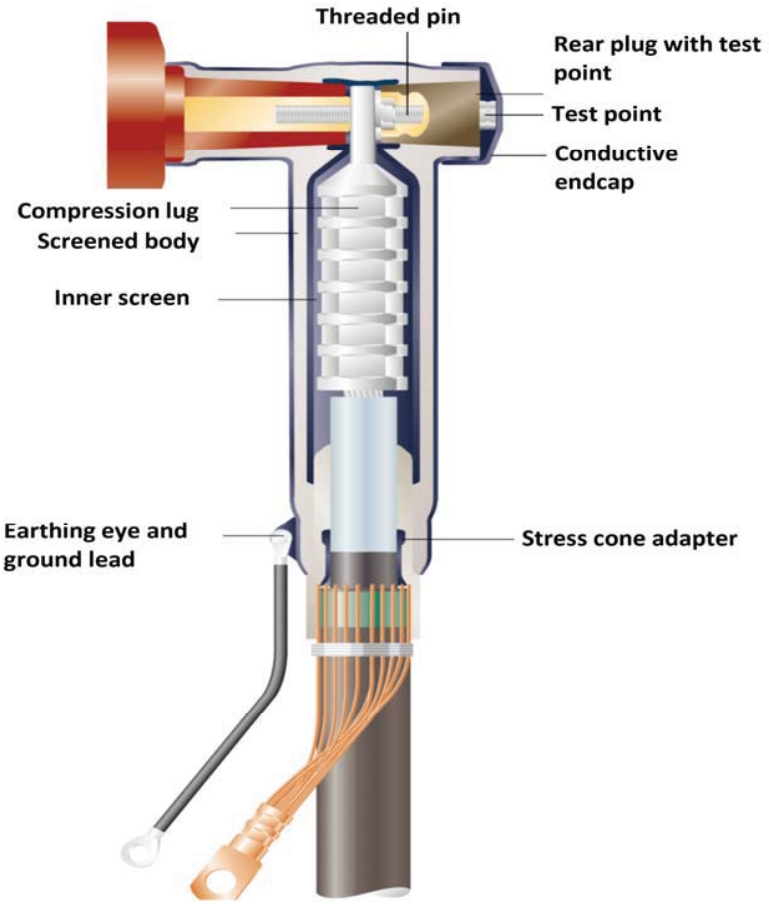
| No | Description | Unit | Requirements | Offered Data | Notes, Remarks , Ref to Documentation | Evaluation Committee Comments |
|---|---|---|---|---|---|---|
| 13 | AC Dry withstand Voltage Test (5 minute without Flashover and No Breakdown) | Kv | 81 | | | |
| 14 | DC withstand Voltage Test (15 minute without Flashover and No Breakdown) | Kv | 108 | | | |
| 15 | Thermal Short Circuit (1 second) | KA | 33 | | | |
| 16 | Dynamic short circuit | KA | 84 | | | |
| 17 | **Termination Kit Parts** | | | | | |
| | a) Screened Body | | Required | | | |
| | b) Inner Screen | | Required | | | |
| | c) DIN Compression Lug for AL or CU Conductors (400 mm2) | | Required | | | |
| | d) Stress Cone Adaptor | | Required | | | |
| | e) Earthing eye and Ground Lead | | Required | | | |
| | f) Threaded Pin Together with a Spring Washer and Hex Nut | | Required | | | |
| | g) Removable Rear Plug with Capacitive Test Point | | Required | | | |
| | h) Test Point | | Required | | | |
| | i) Conductive End cap | | Required | | | |
| 18 | Type Tests and Routine Tests reports by qualified laboratory according to the international specifications | | Required | | | |

# Technical Guarantees No. IT24_400

## 630A , 24 kv Indoor Screened Separable Termination Kit for 12/20 kv XLPE Cable 1x400/35 $mm^2$

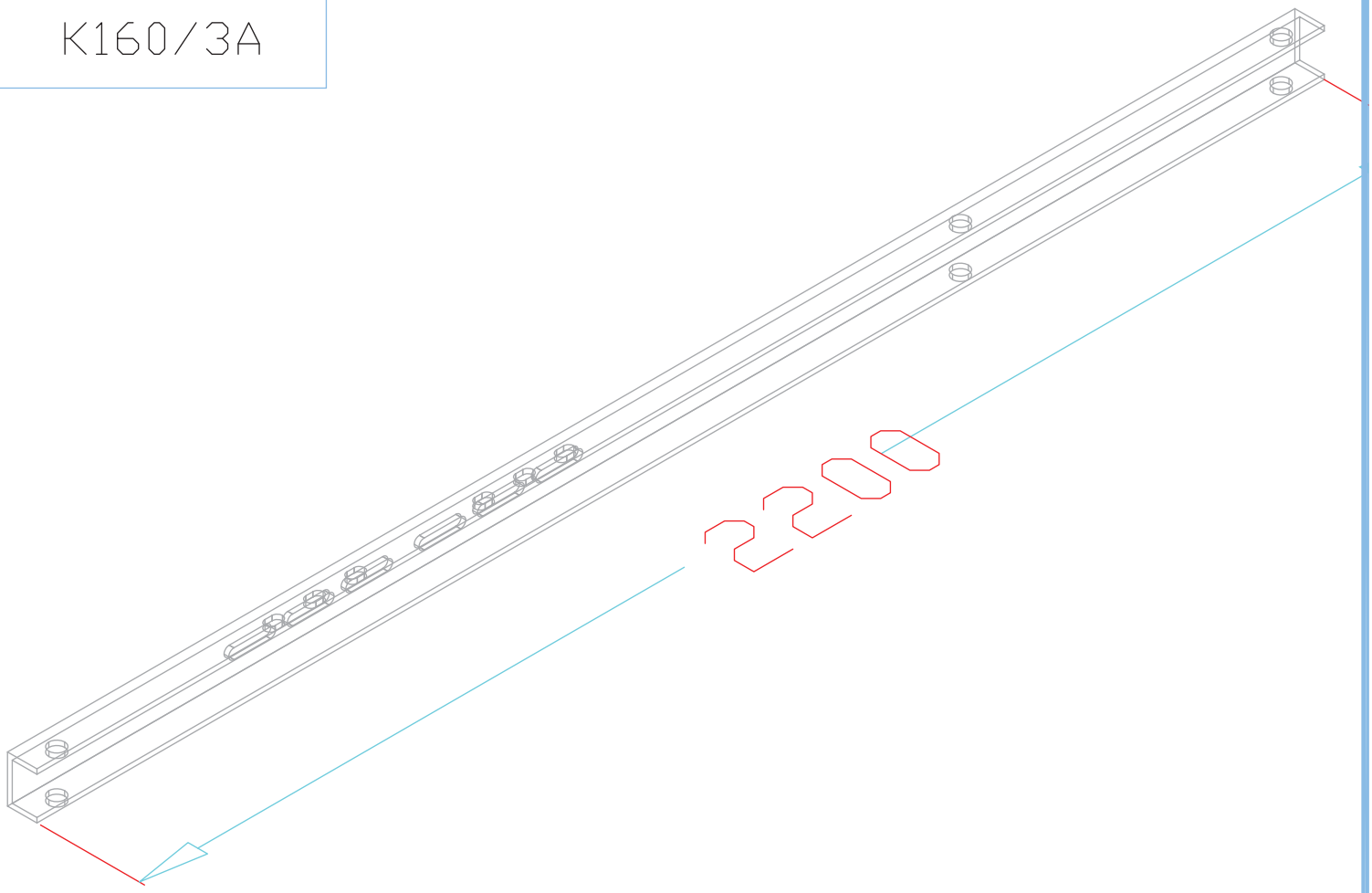
| No | Description | Unit | Requirements | Offered Data | Notes, Remarks , Ref to Documentation | Evaluation Committee Comments |
|---|---|---|---|---|---|---|

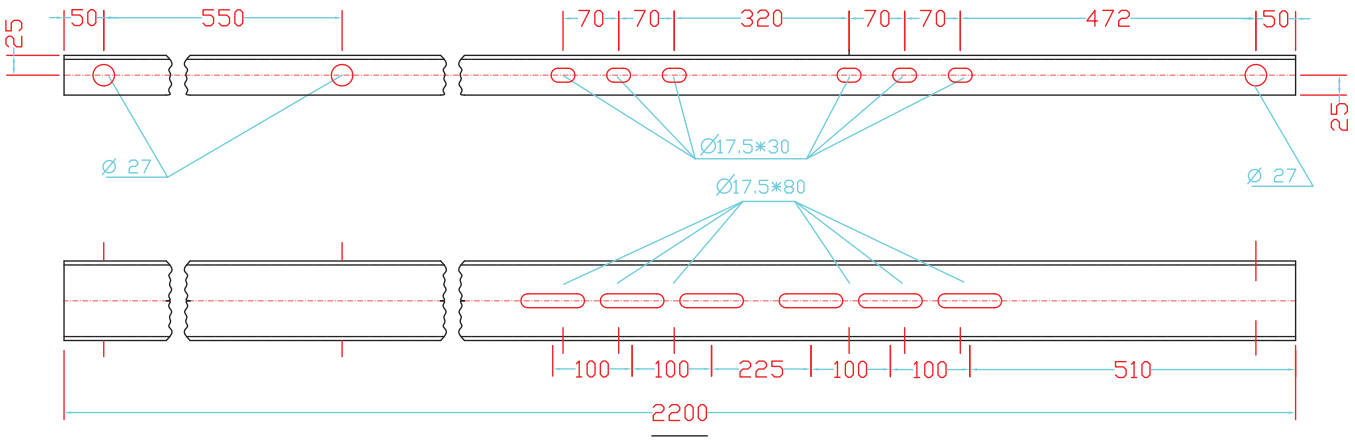



Tenderer's Signature : ……..… Date: ……

# K160/3A




| Weight Kg | Unit mesurment mm | Description | Quant. |
|---|---|---|---|
| 19 | 2200 | CN° 8 | 1 |

Note: All component must be Steel RST37.2 hot dip galvanized

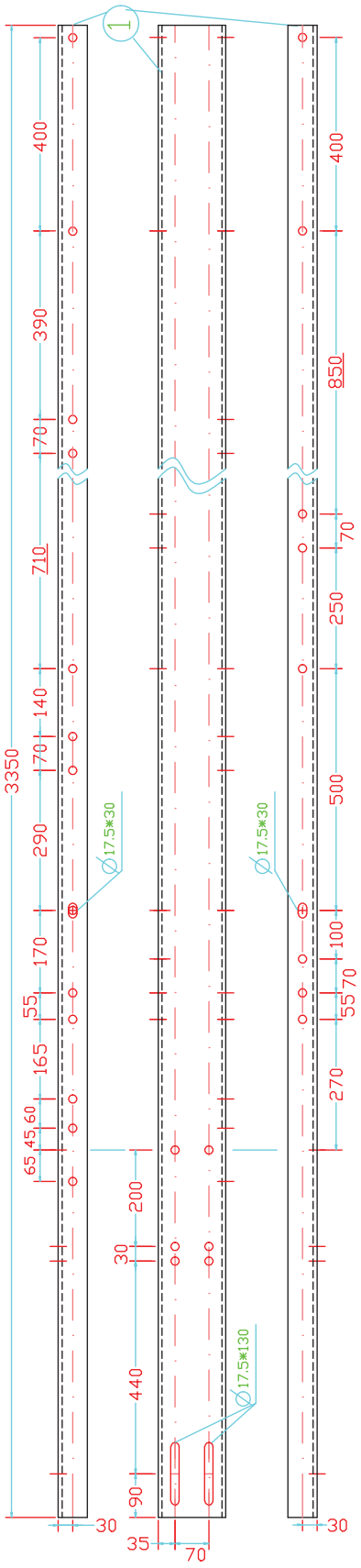
شركة توزيع كهرباء محافظات غزة
GEDCo

Prepared:Eng. ziad ALHoussaini

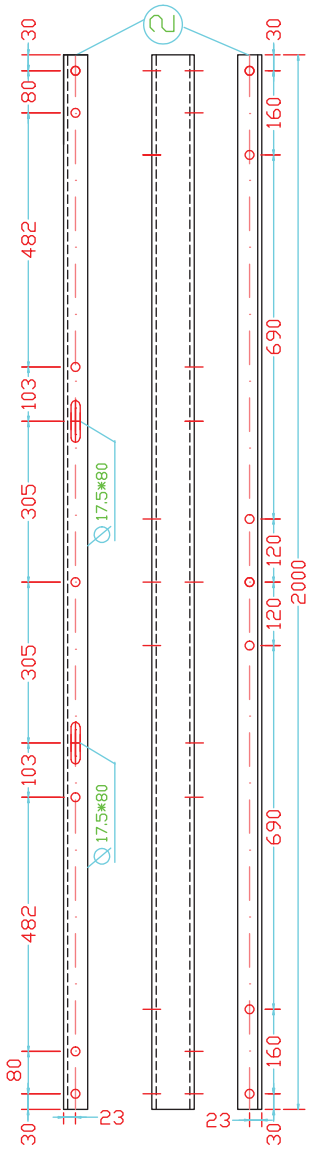
Checked By:Eng. Kamil Rabah

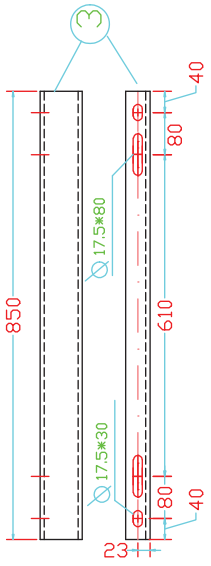
Hot Galvanized Auxilliary Steel Arm K160/3

K1558

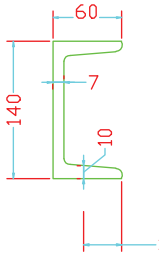



All the holes is Ø17.5

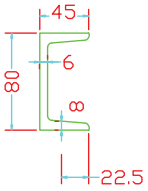



EN° 14




EN° 8




Bolts Required for installation on the pole

- 8 UNC Bolt 5/8"*40mm
- 8 square washer 5/8"
- 8 UNC Bolt 5/8"*35mm
- 8 Ring washer 5/8"

Note: All component must be Steel RST37.2 hot dip galvanized

| K.g | mesurment | mesurment | Description | Item | Quant. |
|---|---|---|---|---|---|
| 107.2 | 6700 | 3350 | CN° 14 | 1 | 2 |
| 34.5 | 4000 | 2000 | CN° 8 | 2 | 2 |
| 7.3 | 850 | 850 | CN° 8 | 3 | 1 |
| 149Kg | Total Weight | | | | |

شركة توزيع كهرباء محافظات غزة
GEDCo

Prepared:Eng. ziad ALHoussini

Checked By:Eng. Kamil Rabah

Hot Galvanized Transformer
Isolator Side Arm K1558
3.35m long

# Technical Guarantees No. OT36_400

## 36 kv Heat Shrinkable Outdoor Termination Kit for XLPE Cable 1x400/35 $mm^2$

| No | Description | Unit | Requirements | Offered Data | Notes, Remarks , Ref to Documentation | Evaluation Committee Comments |
|---|---|---|---|---|---|---|
| 1 | Name of Manufacturer | | | | | |
| 2 | Country of Origin | | | | | |
| 3 | Standards | | IEC60502 & CENELEC HD629.1 S1 | | | |
| 4 | Max. Service Voltage (Um) | kV | 36 | | | |
| 5 | Outdoor Termination Material , form , Designation | | Heat Shrink Tubing and Molded Parts Shall be Flexible, Made from Specially Formulated Cross-Lined Polymeric | | | |
| 6 | Cable and Conductor Type | | Single Core Conductor Cable with Copper Wire Shield | | | |
| 7 | Cable Insulation Type / Thickness | | XLPE / 5.5 mm | | | |
| 8 | Conductor Cross Sectional Area | $mm^2$ | 400 | | | |
| 9 | Wire Screen Cross Sectional Area | $mm^2$ | 35 | | | |
| 10 | Termination Length | mm | 550 | | | |

# Technical Guarantees No. OT36_400

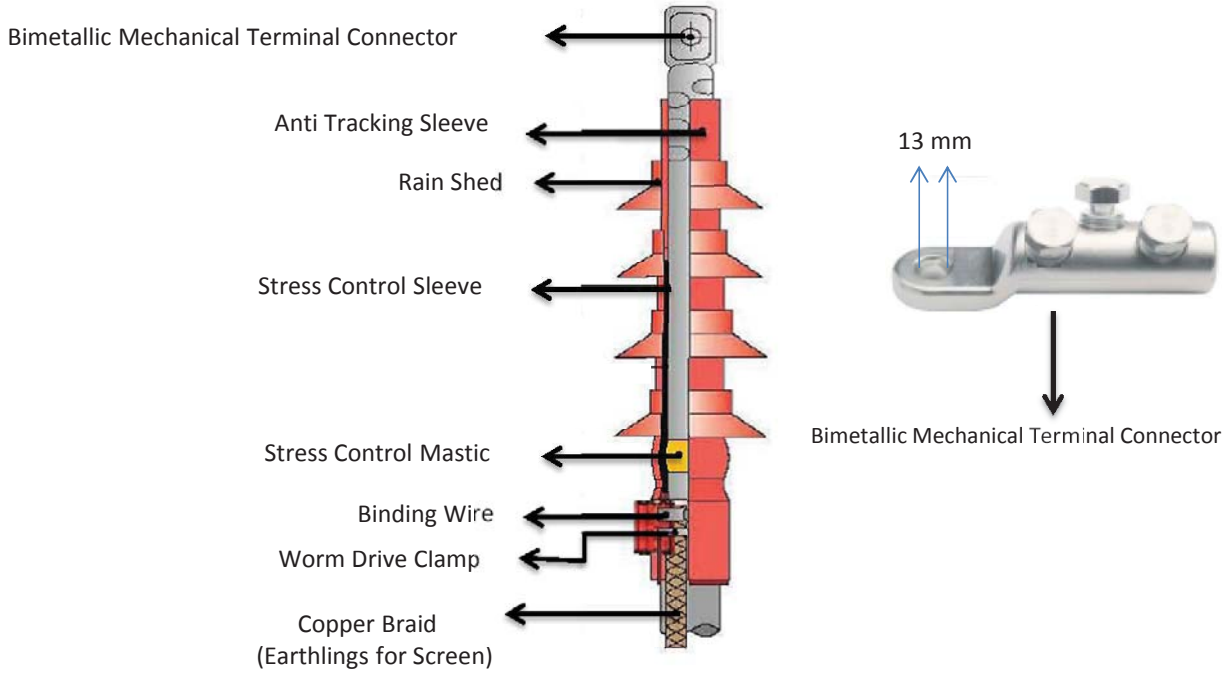
## 36 kv Heat Shrinkable Outdoor Termination Kit for XLPE Cable 1x400/35 $mm^2$

| No | Description | Unit | Requirements | Offered Data | Notes, Remarks , Ref to Documentation | Evaluation Committee Comments |
|---|---|---|---|---|---|---|
| 11 | Rain Shed Diameter | mm | 135 | | | |
| 12 | Number of Rain Sheds | No | 4 | | | |
| 13 | Insulating , Electrical Material and Rain Shed Brittle Temperature | °C | <-40 | | | |
| 14 | Impulse withstand Voltage Test 1.2 Micro Second Between Conductor & Screen Grounded | kV | 170 | | | |
| **15- Test :** | | | | | | |
| 15.1 | All Type tests reports by qualified laboratory according to CENELEC HD 629.1 S1 | | Required | | | |
| 15.2 | Routine test report | | Required | | | |
| 16 | **Heat Shrinkable Outdoor Termination Kit Parts** | | | | | |
| | Bimetallic Terminal Mechanical Lug with 13 mm Hole and 3 each Shear_Head Bolts (for Aluminium or Copper Conductors) | | Required | | | |
| | Anti-Tracking Sleeve | | Required | | | |
| | Rain-Sheds (4each) | | Required | | | |
| | Stress Control Sleeve | | Required | | | |

# Technical Guarantees No. OT36_400

## 36 kv Heat Shrinkable Outdoor Termination Kit for XLPE Cable 1x400/35 mm$^2$

| No | Description | Unit | Requirements | Offered Data | Notes, Remarks , Ref to Documentation | Evaluation Committee Comments |
|---|---|---|---|---|---|---|
| | Stress Control Mastic | | Required | | | |
| | Binding Wire | | Required | | | |
| | Worm Drive Clamp | | Required | | | |
| | Copper Braid (Earthlings) | | Required | | | |
| 17 | Installation Instruction Documents | | Required | | | |




Tenderer's Signature : ……..… Date: ……

# Technical Guarantees No. SA_19

## Metal-Oxide Surge Arresters gap-less Type for 22KV Network With Silicon-Polymeric housing

| No | Description | Unit | Requirements | Offered Data | Notes, Remarks , Ref to Documentation | Evaluation Committee Comments |
|---|---|---|---|---|---|---|
| 1 | Name of Manufacturer | | | | | |
| 2 | Country of Origin | | | | | |
| 3 | Standards | | ANSI C62.1 / IEC60099_4 | | | |
| 4 | Surge arrester Type | | 10kA Heavy Zinc Oxide Duty Polymer Gap-Less | | | |
| **5- Service Conditions** | | | | | | |
| 5.1 | Ambient air temperature | | -10 °C to 55°C | | | |
| 5.2 | Temperature with solar radiation | | 65 °C | | | |
| 5.3 | Installation | | Outdoor | | | |
| 5.4 | Type of installation | | Phase to earth | | | |
| 5.5 | Nominal syst. Voltage between phases | kV | 22 | | | |
| 5.6 | Max. syst. Voltage between phases | kV | 24 | | | |
| 5.7 | Rated Frequency | Hz | 50 | | | |
| 6 | Impulse withstand Voltage 1,2/50 µs | kV | 125 | | | |
| 7 | Maximum continues operating voltage (M.C.O.V) | kV | 19.5 | | | |
| **8- Temporary overvoltages: Utov** | | | | | | |
| 8.1 | a) For 1 sec. | kV | | | | |

# Technical Guarantees No. SA_19

## Metal-Oxide Surge Arresters gap-less Type for 22KV Network With Silicon-Polymeric housing

| No | Description | Unit | Requirements | Offered Data | Notes, Remarks , Ref to Documentation | Evaluation Committee Comments |
|---|---|---|---|---|---|---|
| 8.2 | b) For 10 sec. | kV | | | | |
| 9 | submit arrester curves of Utov as function of their duration at 40-60 °C ambient temperature | | Should be submitted | | | |
| 10 | Nominal discharge current (8/20μs) In | kA peak | 10 | | | |
| 11 | Partial discharge at 1.05 Uc | | ≤5 pc | | | |
| 12 | Arrester housing Material | | High quality Silicon-Polymeric | | | |
| 13 | Creepage Distance | mm | 910 | | | |
| 14 | Equivalent Front-of-Wave (maximum discharge voltage for a 10 kA impulse current wave which produces a voltage wave cresting in 0.5 μs.) | kV Crest | ≤88 | | | |
| **15- Max. Discharge Voltage Using an 8/20 μs Current Impulse** | | | | | | |
| 15.1 | a) 2.5 KA | kV | ≤65 | | | |
| 15.2 | b) 5 KA | kV | ≤70 | | | |
| 15.3 | c) 10 KA | kV | ≤75 | | | |
| 15.4 | c) 20 KA | kV | ≤80 | | | |
| **16- Discharge current withstand** | | | | | | |
| 16.1 | a) High current impulse 4/10μs | $KA_{peak}$ | 100 | | | |
| 16.2 | b) Long duration current 200μs | $A_{peak}$ | 250 | | | |

# Technical Guarantees No. SA_19

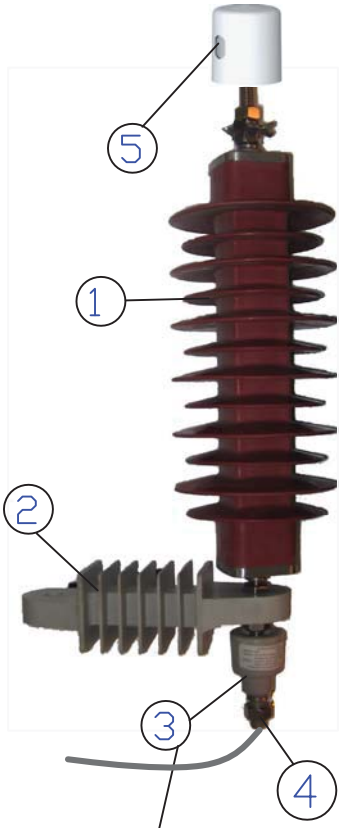
## Metal-Oxide Surge Arresters gap-less Type for 22KV Network With Silicon-Polymeric housing

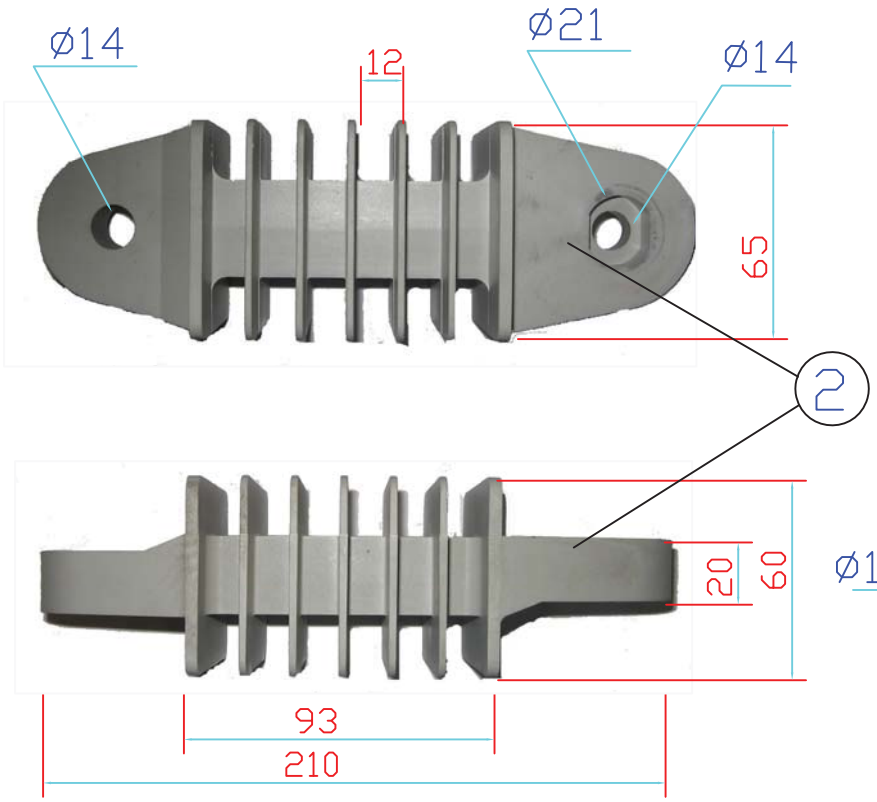
| No | Description | Unit | Requirements | Offered Data | Notes, Remarks , Ref to Documentation | Evaluation Committee Comments |
|---|---|---|---|---|---|---|
| 17 | All Test reports for all materials of surge arrester | | should be submitted | | | |
| **18- Additional equipment & fittings:** | | | | | | |
| 18.1 | a) Disconnector | | Required | | | |
| 18.2 | b) Brackets | | Required | | | |
| 18.3 | c) Bird cap | | Required | | | |
| 18.4 | b) Earth lead | | Required | | | |
| 18.4.1 | Earth lead Cable Material | | Extra Flexible PVC Insulated Copper (Multi Stranded Wires according to DIN VDE 0295 Class5) | | | |
| 18.4.2 | Earth lead Cable Length | m | 0.5 | | | |
| 18.4.3 | Earth lead Cable Cross Section | $mm^2$ | 70 | | | |
| 18.4.4 | Suitable 2 Each Compression lug with 13 mm Hole for Earth Lead | | Required | | | |
| 19 | Type Test Certificates /Reports from internationally reputed testing agency (According IEC 60099-4) | | Required | | | |
| 20 | Attached Drawing | | Drawing No SA_19 | | | |

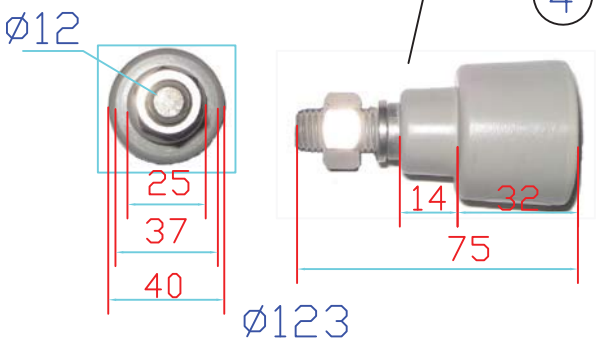
Tenderer's Signature : ……..… Date: ……

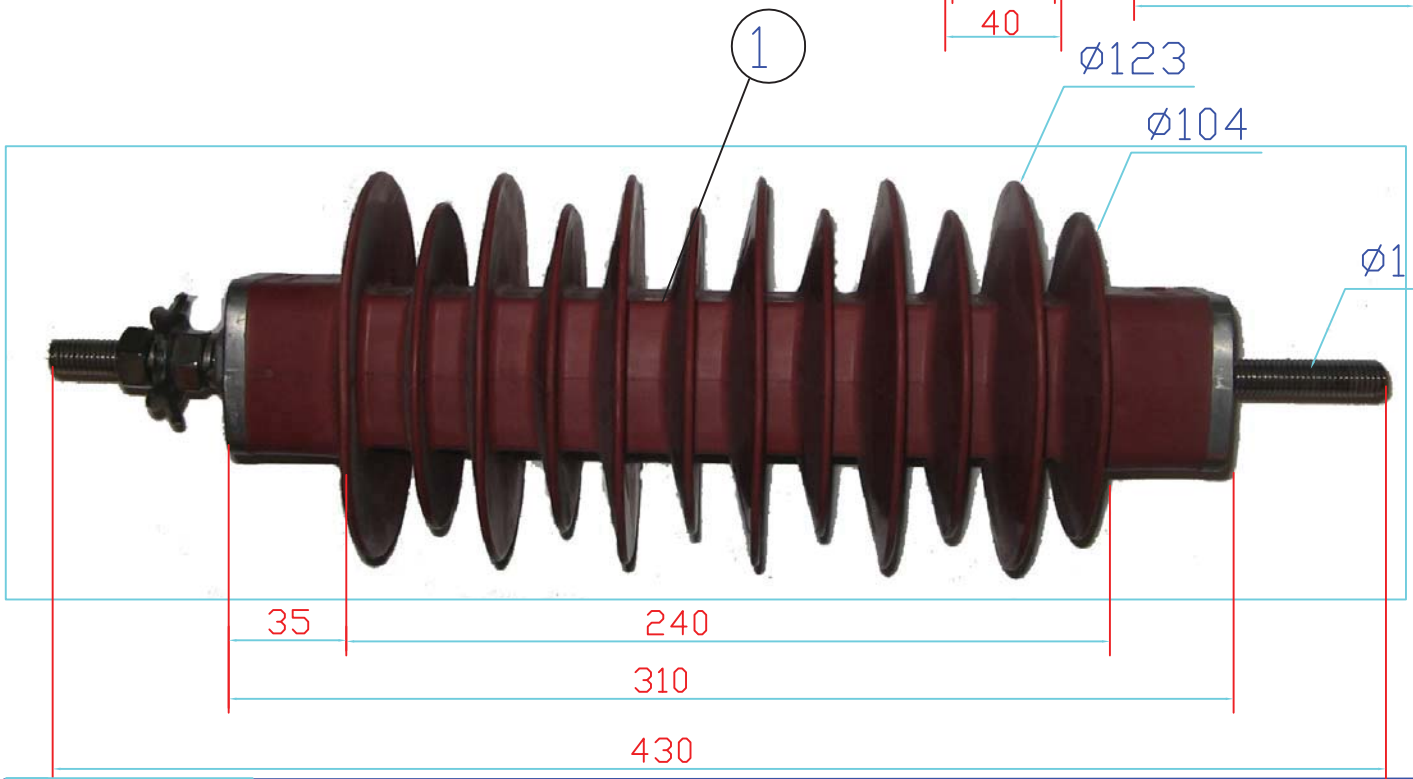
SA_19

# Surge Arrestor




| | |
|---|---|
| 1 | Surge Arrestor |
| 2 | Bracket |
| 3 | Disconnector |
| 4 | Ground lead |
| 5 | Bird Cap |

Outdoor Metal Oxide Surge Arrestor M.C.O.V 19.5 KV

شركة توزيع كهرباء محافظات غزة
مساهمة محدودة
Gaza Electricity Distribution Corporation LTD.
شركة توزيع كهرباء محافظات غزة
GEDCo

Prepared:Eng. ziad ALHoussaini

Checked By:Eng. Kamil Rabah

Note: According to the attached specification

# Technical Guarantees No. SJ24_400

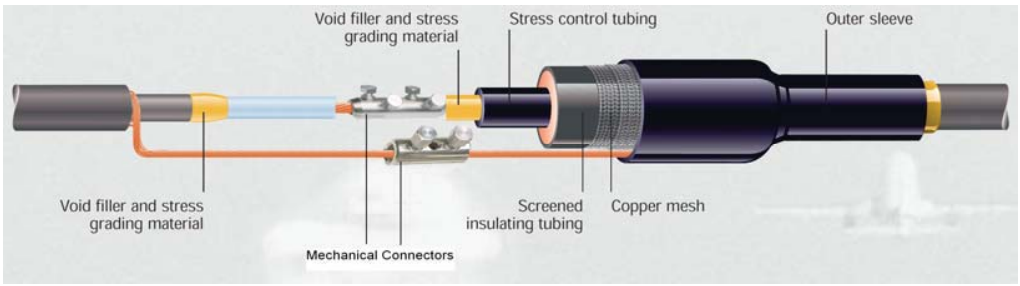
## 24 kv Heat Shrinkable Straight Joint for Single Core XLPE Cable 1x400/35 $mm^2$

| No | Description | Unit | Requirements | Offered Data | Notes, Remarks , Ref to Documentation | Evaluation Committee Comments |
|---|---|---|---|---|---|---|
| 1 | Name of Manufacturer | | | | | |
| 2 | Country of Origin | | | | | |
| 3 | Standards | | HD 629.1 S1 , VDE0276 , VDE0620 | | | |
| 4 | Max. Service Voltage (Um) | kV | 24 | | | |
| 5 | Cable and Conductor Type | | 12/20 kv Single Core Cable with Copper Wire Shield | | | |
| 6 | Cable Insulation Type | | XLPE | | | |
| 7 | Conductor Cross Sectional Area | $mm^2$ | 400 | | | |
| 8 | Copper Shield Cross Sectional Area | $mm^2$ | 35 | | | |
| **9- Test :** | | | | | | |
| 9.1 | Below Type tests reports by qualified laboratory according to CENELEC HD 629.1 S1 or IEC 60502-4 :-<br>AC Voltage Withstand<br>Partial Discharge<br>Impulse Voltage Withstand<br>Short Time Current<br>Cyclic Aging<br>DC Voltage Withstand<br>High Voltage Time<br>Shielding | | Required | | | |
| 9.2 | Mechanical connectors Test used in joints should pass the requirements in accordance with IEC 61238-1 class A. | | Required | | | |
| 10 | Routine test report | | Required | | | |
| 11 | Installation Instruction Documents | | Required | | | |
| | **Heat Shrinkable Straight Joint Parts** | | | | | |
| | Stress Control Tubing | | Required | | | |
| | Screened insulating Sleeve | | Required | | | |

# Technical Guarantees No. SJ24_400

## 24 kv Heat Shrinkable Straight Joint for Single Core XLPE Cable 1x400/35 mm$^2$

| No | Description | Unit | Requirements | Offered Data | Notes, Remarks , Ref to Documentation | Evaluation Committee Comments |
|---|---|---|---|---|---|---|
| 12 | Outer Sleeve (Heat Shrink able Conductive Material) | | Required | | | |
| | Screened Insulating Tubing | | Required | | | |
| | Filling Mastic | | Required | | | |
| | 24kv Mechanical Connector with Shear-Head Bolts and Central Barrier for AL or CU Conductors (400 mm2) | | Required | | | |
| | Mechanical Connector with Shear-Head Bolts and Central Barrier for Copper Shield (35 mm2) | | Required | | | |
| | Mastic Wrap | | Required | | | |
| | Copper Mesh | | Required | | | |




Tenderer's Signature : …….. Date: ……

# Technical Guarantees No. XLPEA_400

## 12/20 kV Single Core Cable with XLPE Insulation and Aluminium Circular Stranded Conductor 1x400 $mm^2$

| No | Description | Unit | Requirements | Offered Data | Notes, Remarks , Ref to Documentation | Evaluation Committee Comments |
|---|---|---|---|---|---|---|
| 1 | Name of Manufacturer | | | | | |
| 2 | Country of Origin | | | | | |
| 3 | Design Standards | | IEC60502-2 & IEC60228 | | | |
| 4 | Test Standards | | IEC60230 & IEC60502-2 & IEC60811 | | | |
| 5 | Code & Designation | | NA2XS(F)2Y , Power Cable with Aluminum Conductors and XLPE Insulation | | | |
| 6 | Climatic Design | | - 5°C to 55°C | | | |
| **7- Rated Voltage** | | | | | | |
| 7.1 | Between Conductor and Sheath ($U_o$) | kV | 12 | | | |
| 7.2 | Between any Two Conductors (U) | kV | 20 | | | |
| 7.3 | Max. Service Voltage ($U_m$) | kV | 24 | | | |
| 7.4 | System Nominal Voltage | kV | 22 | | | |
| 8 | Rated Frequency | HZ | 50 | | | |
| 9 | Impulse withstand Voltage 1,2/50 µs | kV | 125 | | | |
| **10- Cable Design** | | | | | | |
| **10.1 Conductor :** | | | | | | |
| 10.1.1 | Cross Section | $mm^2$ | 400 | | | |
| 10.1.2 | Material | | Aluminum | | | |
| 10.1.3 | Class and Form | | Class2 - Stranded Compacted Circular (filled with swelling powder) | | | |
| 10.1.4 | Minimum / Maximum Diameter | mm | 23.1 / 24.6 | | | |

# Technical Guarantees No. XLPEA_400

## 12/20 kV Single Core Cable with XLPE Insulation and Aluminium Circular Stranded Conductor 1x400 $mm^2$

| No | Description | Unit | Requirements | Offered Data | Notes, Remarks , Ref to Documentation | Evaluation Committee Comments |
|---|---|---|---|---|---|---|
| 10.1.5 | Minimum Number of Strands | No | 53 | | | |
| 10.1.6 | Weight of Conductor Per Meter | Kg/Km | shall be filled by manufacturer | | | |
| 10.1.7 | Maximum DC Resistance of Conductor at 20°C | Ω/km | 0.0778 | | | |
| 10.1.8 | Max. Rated Temperature for Permanent Load | °C | 90 | | | |
| 10.1.9 | Max. Rated Temperature for Emergency Loads | °C | 105 | | | |
| 10.1.10 | Max. Rated Conductor Temperature at Short Circuit (1 sec. max. duration) | °C | 250 | | | |
| **10.2 Inner Semi Conductive Layer (Conductor Screen) :** | | | | | | |
| 10.2.1 | Material | | Triple Extruded Bonded Thermosetting Semi-Conductive Layer | | | |
| 10.2.2 | Thickness at Any Point | mm | 0.3 | | | |
| 10.2.3 | Max Service Temperature | °C | 90 | | | |
| **10.3- XLPE Insulation :** | | | | | | |
| 10.3.1 | Material | | Triple Extruded Dry Cured (XLPE) | | | |
| 10.3.2 | Nominal Thickness | mm | 5.5 | | | |
| 10.3.3 | Minimum Thickness at Any Point | mm | 4.85 | | | |
| 10.3.4 | Diameter Over Insulation | mm | shall be filled by manufacturer | | | |
| 10.3.5 | Max Service Temperature | °C | 90 | | | |
| 10.3.6 | Weight | Kg/Km | shall be filled by manufacturer | | | |
| **10.4- Outer Semi Conductive Layer (Insulation Screen) :** | | | | | | |

# Technical Guarantees No. XLPEA_400

## 12/20 kV Single Core Cable with XLPE Insulation and Aluminium Circular Stranded Conductor 1x400 $mm^2$

| No | Description | Unit | Requirements | Offered Data | Notes, Remarks , Ref to Documentation | Evaluation Committee Comments |
|---|---|---|---|---|---|---|
| 10.4.1 | Material | | Triple Extruded Bonded Thermosetting Semi-Conductive Layer | | | |
| 10.4.2 | Thickness at Any Point | mm | 0.3 | | | |
| 10.4.3 | Max Service Temperature | °C | 90 | | | |
| **10.5- Semi-Conductive Water Swelling Tape :** | | | | | | |
| 10.5.1 | Material | | Semi Conductive Tape | | | |
| 10.5.2 | Thickness at Any Point | mm | 0.3 | | | |
| 10.5.3 | Max Service Temperature | °C | 90 | | | |
| **10.6- Copper Wire Screen (including Equalizing Tape) :** | | | | | | |
| 10.6.1 | Material of Wire and Equalizing Tape | | Copper | | | |
| 10.6.2 | Minimum Wires Number | | shall be filled by manufacturer | | | |
| 10.6.3 | Wire Geometrical Cross Section | $mm^2$ | 35 | | | |
| 10.6.4 | Equalizing Tape Width | mm | 20 | | | |
| 10.6.5 | Equalizing Tape Thickness | mm | 0.1 | | | |
| **10.7- Separation Sheath (Binder Tape) :** | | | | | | |
| 10.7.1 | Material | | Water Blocking Tape Non-Conductive | | | |
| 10.7.2 | Thickness | mm | 0.2 - 0.3 | | | |
| 10.7.3 | Max Service Temperature | °C | 90 | | | |
| **10.8- Outer Sheath :** | | | | | | |
| 10.8.1 | Material | mm | LDPE ST7 with Chemical Additives | | | |
| 10.8.2 | Nominal Thickness | mm | 2.5 | | | |

# Technical Guarantees No. XLPEA_400

## 12/20 kV Single Core Cable with XLPE Insulation and Aluminium Circular Stranded Conductor 1x400 $mm^2$

| No | Description | Unit | Requirements | Offered Data | Notes, Remarks , Ref to Documentation | Evaluation Committee Comments |
|---|---|---|---|---|---|---|
| 10.8.3 | Minimum Thickness at Any Point | mm | shall be filled by manufacturer | | | |
| 10.8.4 | Max Service Temperature | °C | 90 | | | |
| 10.8.5 | Color | | Black | | | |
| 10.8.6 | Weight | Kg/Km | shall be filled by manufacturer | | | |
| **10.9- Completed Cable :** | | | | | | |
| 10.9.1 | Overall Diameter of the Cable | mm | shall be filled by manufacturer | | | |
| 10.9.2 | Total Weight of the Cable | kg/km | shall be filled by manufacturer | | | |
| 10.9.3 | Minimum Bending Radius | mm | shall be filled by manufacturer | | | |
| **10.9.4** | **Sustained Current Rating in Underground Under Below Conditions :** | | | | | |
| 10.9.4.1 | At **Flat** Laying Arrangement (Buried in 0.7 m Deep in Soil at 20 $^{o}$C with 1 k.m/w Thermal Resistivity and Load Factor 0.7 ) | A | 564 | | | |
| 10.9.4.2 | At **Trefoil** Laying Arrangement (Buried in 0.7 m Deep in Soil at 20 $^{o}$C with 1 k.m/w Thermal Resistivity and Load Factor 0.7 ) | A | 535 | | | |
| 11 | Maximum Short-Circuit Current of Conductor During 1 sec. | KA | ≥37.6 | | | |
| **12- Drum :** | | | | | | |
| 12.1 | Method of Cable Delivery | | on Drums | | | |
| 12.2 | Length of Cable on Drum | m | 500 | | | |
| 12.3 | Drum Material | | New Wood | | | |

## Technical Guarantees No. XLPEA_400

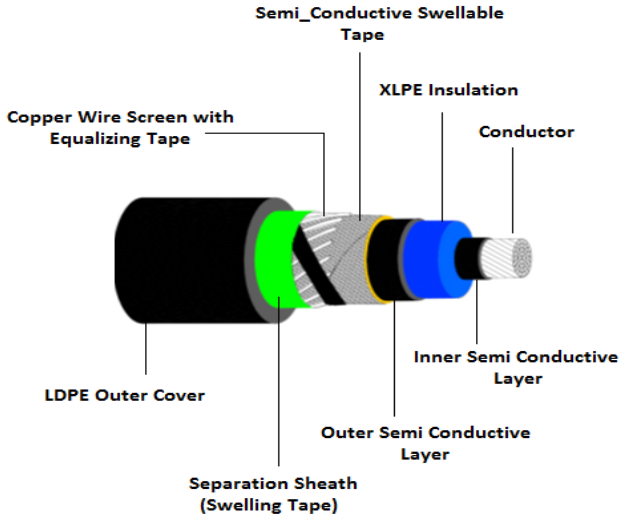
## 12/20 kV Single Core Cable with XLPE Insulation and Aluminium Circular Stranded Conductor 1x400 $mm^2$

| No | Description | Unit | Requirements | Offered Data | Notes, Remarks , Ref to Documentation | Evaluation Committee Comments |
|---|---|---|---|---|---|---|
| 12.4 | Cable Protection on Drum | | Wooden Batten | | | |
| 12.5 | Max. Gross Weight of Drum with Cable | kg | shall be filled by manufacturer | | | |
| 12.6 | Dimension of Drum | mm | shall be filled by manufacturer | | | |
| 13 | Permissible Pulling Forces | N | shall be filled by manufacturer | | | |
| **14- Test :** | | | | | | |
| 14.1 | Type Test Certificates /Reports from internationally reputed testing agency | | Required | | | |
| 14.2 | ptance & Routine tests witnessed by three Engineers | | Required | | | |
| 15 | Marking | | ***Hot Stamping, giving :***<br>1- Type of cable<br>2- Conductor Cross-section area<br>3- Beneficiary Name **(Gedco)**<br>4- Manufacturer name<br>5- Nominal voltage<br>6- Length for Each Meter<br>7- Production year | | | |

# Technical Guarantees No. XLPEA_400

## 12/20 kV Single Core Cable with XLPE Insulation and Aluminium Circular Stranded Conductor 1x400 mm$^2$

| No | Description | Unit | Requirements | Offered Data | Notes, Remarks , Ref to Documentation | Evaluation Committee Comments |
|---|---|---|---|---|---|---|




Tenderer's Signature : ……..… Date: ……

# Technical Guarantees No. PPYI_1050

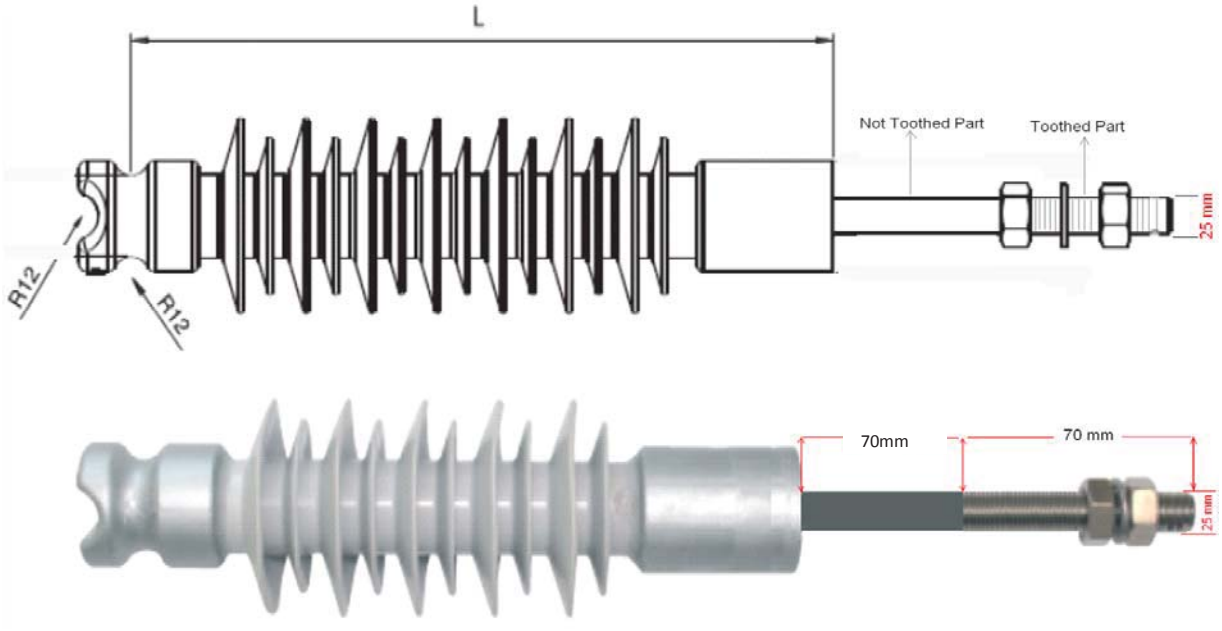
## 22kv Overhead Line Pin Type Polymer Insulator with Creepage Distance 1050 mm

| No | Description | Unit | Requirements | Offered Data | Notes, Remarks , Ref to Documentation | Evaluation Committee Comments |
|---|---|---|---|---|---|---|
| 1 | Name of Manufacturer | | | | | |
| 2 | Country of Origin | | | | | |
| 3 | Design Standards | | IEC 61109 , IEC 60815 | | | |
| 4 | Nominal System Voltage | kV | 24 | | | |
| 5 | Type | | Pin Type | | | |
| 6 | Insulating Material | | Composite Polymer | | | |
| 7 | Housing | | Silicon | | | |
| 8 | Metal Parts | | Hot Dip Galvanized | | | |
| 9 | Number of Sheds | | | | | |
| 10 | Total Length (L) | mm | | | | |
| 11 | Shed Diameter | mm | | | | |
| 12 | Min. Creepage Distance | mm | 1050 | | | |
| 13 | Cantilever Strength | KN | 12.5 | | | |
| 14 | Total Weight | Kg | | | | |
| **15- Power Frequency withstand Voltage (1 min)** | | | | | | |
| 15.1 | a) Dry | kV | 85 | | | |
| 15.2 | b) Wet | kV | 70 | | | |
| 15.3 | c) Impulse +VE & -VE | kV | | | | |
| **16- Flashover Voltage** | | | | | | |
| 16.1 | a) Power Frequency (Dry) | kV | 125 | | | |
| 16.2 | b )Power Frequency (Wet) | kV | 95 | | | |
| 16.3 | c) Impulse +VE & -VE | kV | 215 | | | |

# Technical Guarantees No. PPYI_1050

## 22kv Overhead Line Pin Type Polymer Insulator with Creepage Distance 1050 mm

| No | Description | Unit | Requirements | Offered Data | Notes, Remarks , Ref to Documentation | Evaluation Committee Comments |
|---|---|---|---|---|---|---|
| **17-** | **Fittings** | | | | | |
| 17.1 | Pin Diameter (stud) | mm | 25 | | | |
| 17.2 | Pin Not_Toothed Part Length | mm | 70 | | | |
| 17.3 | Pin Toothed Part Length | mm | 70 | | | |
| 17.4 | The Top slot Diameter | mm | 24 | | | |
| 17.5 | Pin Accessories | | Nuts and Washers | | | |
| 18 | Type Test Certificates/Reports from internationally reputed testing agency | | Required | | | |
| 19 | Dimensions | | as Below Drawing | | | |




Tenderer's Signature : ……..… Date: ……

# Technical Guarantees No. TPYI_1050

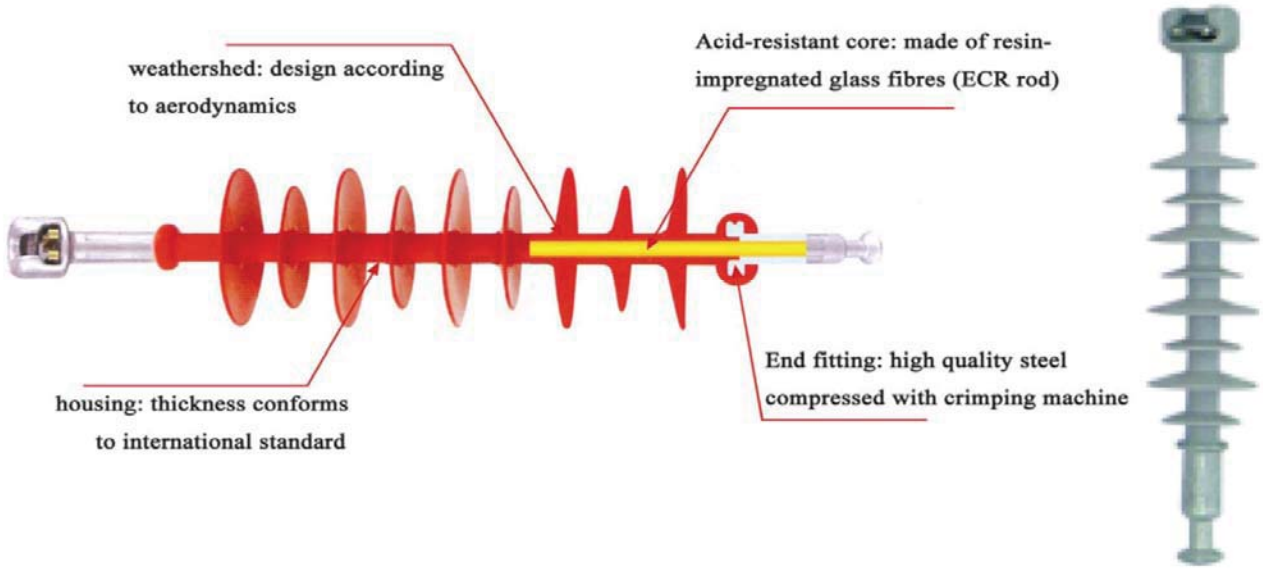
## 22kv Overhead Line Tension Polymeric Composite Insulator with Ball and Socket and Creepage Distance 1050 mm

| No | Description | Unit | Requirements | Offered Data | Notes, Remarks , Ref to Documentation | Evaluation Committee Comments |
|---|---|---|---|---|---|---|
| 1 | Name of Manufacturer | | | | | |
| 2 | Country of Origin | | | | | |
| 3 | Design Standards | | BS 3288 , IEC61109 , IEC60815 | | | |
| 4 | Nominal System Voltage | kV | 24 | | | |
| 5 | Type | | Ball and Socket type | | | |
| 6 | Insulating Material | | Composite Polymer | | | |
| 7 | Housing | | Silicon | | | |
| 8 | Metal Parts | | Hot Dip Galvanized | | | |
| 9 | Number of Sheds | | | | | |
| 10 | Total Length | mm | | | | |
| 11 | Shed Diameter | mm | | | | |
| 12 | Min. Creepage Distance | mm | 1050 | | | |
| 13 | Min. Mechanical Failing Load | kN | 70 | | | |
| 14 | Socket and Ball Size | mm | Φ16 | | | |
| 15 | Weight | Kg | | | | |
| 16 | AC 1 min. Flashover (Dry) | kV | 130 | | | |

# Technical Guarantees No. TPYI_1050

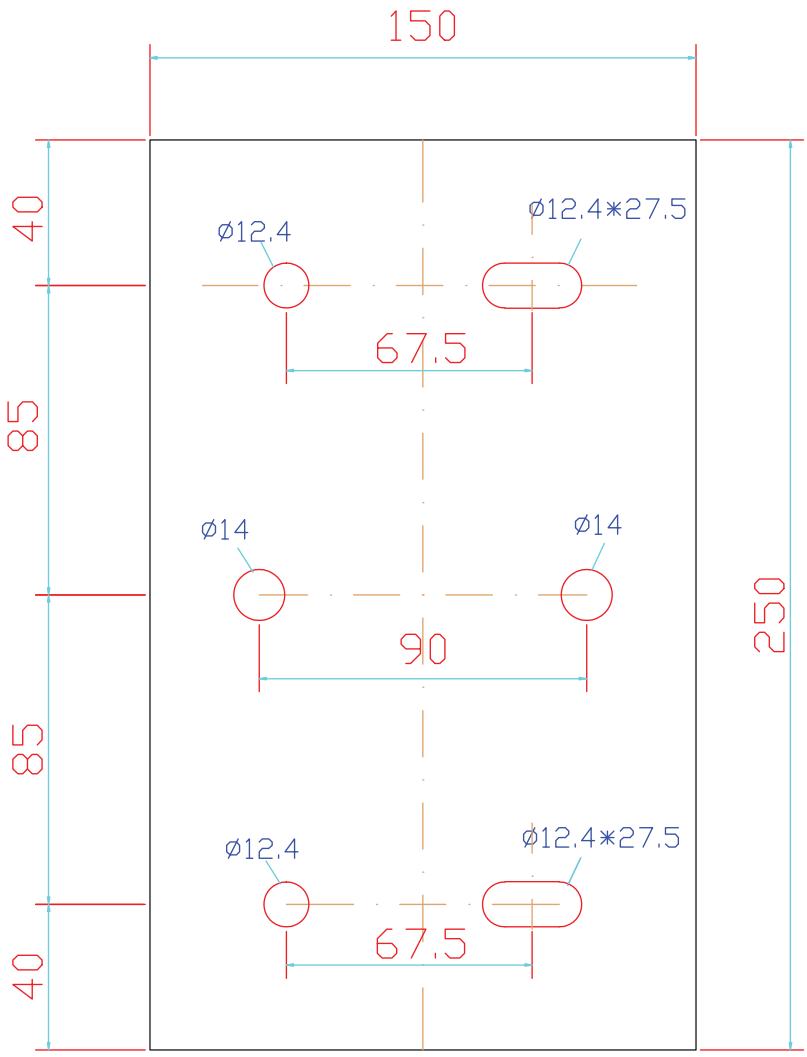
## 22kv Overhead Line Tension Polymeric Composite Insulator with Ball and Socket and Creepage Distance 1050 mm

| No | Description | Unit | Requirements | Offered Data | Notes, Remarks , Ref to Documentation | Evaluation Committee Comments |
|---|---|---|---|---|---|---|
| 17 | AC 1 min. withstand (Dry) | kV | 125 | | | |
| 18 | AC 1 min. Flashover (Wet) | kV | 120 | | | |
| 19 | AC 1 min. withstand (Wet) | kV | 100 | | | |
| 20 | Type Test Certificates/Reports from internationally reputed testing agency | | Required | | | |




Tenderer's Signature : …….. Date: ……

| PMV_250 | Plate for M.V Cable |
|---|---|




Bolts Required for
installation on the Arm

2 UNC Bolt 1/2"*35mm

| Unit mm mesurment | Description | Item | Quant. |
|---|---|---|---|
| 250 | Plate ⍁150*3 | 1 | 1 |

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GEDCo
Prepared:Eng. ziad ALHoussini

# Plate for M.V Cable

Nots: All component must be Steel 37.2
hot dip galvanized

# Technical Guarantees No. IT24_400

## 24 kv Indoor Termination Kit for XLPE Cable 1x400 $mm^2$

| No | Description | Unit | Requirements | Offered Data | Notes, Remarks , Ref to Documentation | Evaluation Committee Comments |
|---|---|---|---|---|---|---|
| 1 | Name of Manufacturer | | | | | |
| 2 | Country of Origin | | | | | |
| 3 | Reference Manufacturing Standards | | CENELEC HD629.1 S2, HD506 S1 & EN50180 | | | |
| 4 | Max. Service Voltage (Um) | kV | 24 | | | |
| 5 | Termination Design | | Separable Tee Shape Connector (Bolted Type) | | | |
| 6 | Termination Material | | Cross linked EPDM | | | |
| 7 | Cable and Conductor Type | | Single Core Aluminium or Copper Conductor Cable with Copper Wire Shield | | | |
| 8 | Cable Insulation Type | | XLPE | | | |
| 9 | Conductor Cross Sectional Area | $mm^2$ | 400 | | | |
| 10 | Approximate Overall Diameter of the Cable | mm | 45 | | | |
| 11 | Conductor Minimum / Maximum Diameter | mm | 23.7 / 24.1 | | | |
| 12 | Current Carrying Capacity | A | 630 | | | |
| 13 | Basic Impulse Level | kV | 170 | | | |
| 14 | Partial discharge at 2 $U_0$ | | < 5 Pc | | | |

# Technical Guarantees No. IT24_400

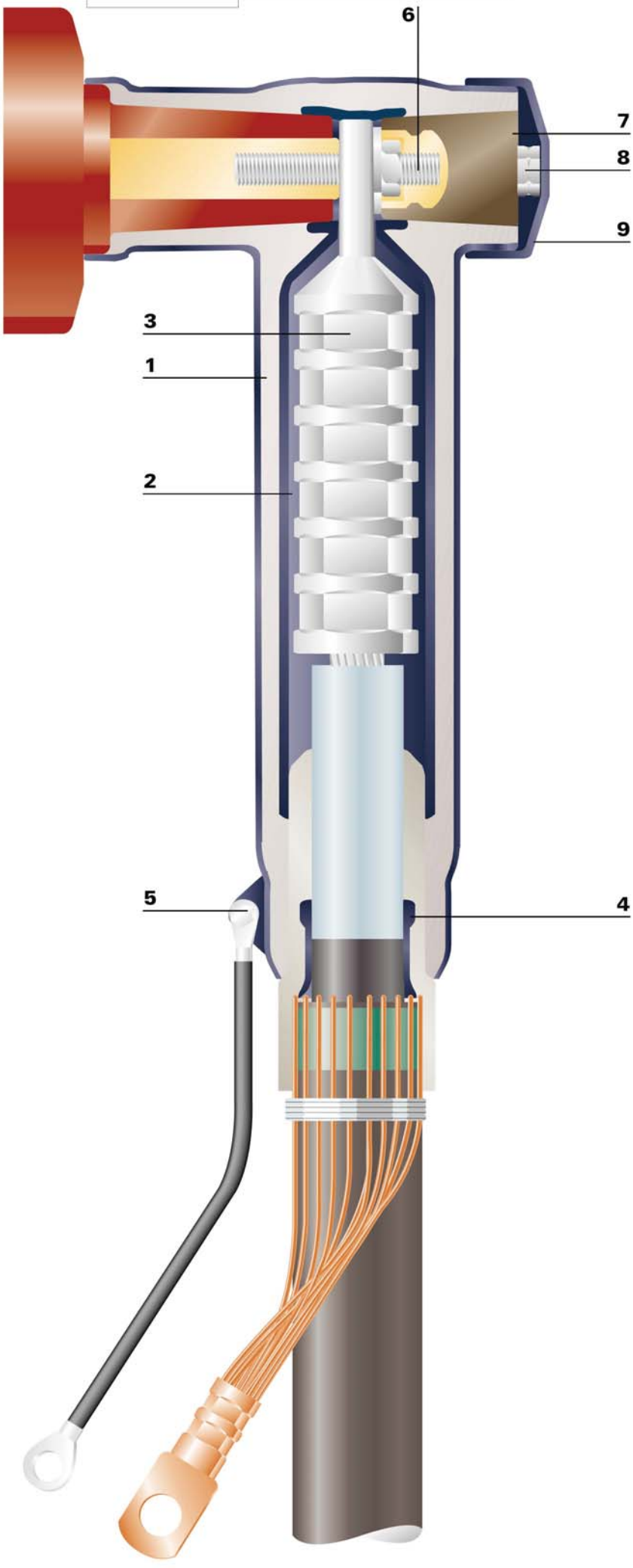
## 24 kv Indoor Termination Kit for XLPE Cable 1x400 $mm^2$

| No | Description | Unit | Requirements | Offered Data | Notes, Remarks , Ref to Documentation | Evaluation Committee Comments |
|---|---|---|---|---|---|---|
| 15 | AC Dry withstand Voltage Test (1 minute without Flashover and No Breakdown) | Kv | 81 | | | |
| 16 | DC withstand Voltage Test (15 minute without Flashover and No Breakdown) | Kv | 108 | | | |
| 17 | Thermal Short Circuit, 1 second | KA | 33 | | | |
| 18 | Dynamic short circuit | KA | 84 | | | |
| 19 | **Termination Kit Parts** | | | | | |
| | Screened Body | | Required | | | |
| | Inner Screen | | Required | | | |
| | Compression Lug for AL or CU Conductors (400 mm2) | | Required | | | |
| | Stress Cone Adaptor | | Required | | | |
| | Earthing eye and Ground Lead | | Required | | | |
| | Threaded Pin Together with a Spring Washer and Hex Nut | | Required | | | |
| | Removable Rear Plug with Capacitive Test Point | | Required | | | |
| | Test Point | | Required | | | |
| | Conductive End cap | | Required | | | |
| 20 | Attached Drawing | | Drawing No IT24_400 | | | |

Tenderer's Signature : ……..… Date: ……

# IT24_400

**24 kv Indoor Termination Kit for XLPE Cable 1x400 mm2**




**1 Screened body**
A thin walled conductive outer screen is permanently bonded to the silicone rubber insulating material of the body.

**2 Inner screen**
A conductive inner layer, as a Faraday cage around the compression lug, prevents corona at rated voltage.

**3 Compression lug**
Specially designed DIN compression lugs for connecting either aluminium or copper conductor cables.

**4 Stress cone adapter**
Relieves electrical stress at the point where the cable screen is cut. The insulated section, extending beyond the wire shielding, provides a convenient point for over sheath testing.

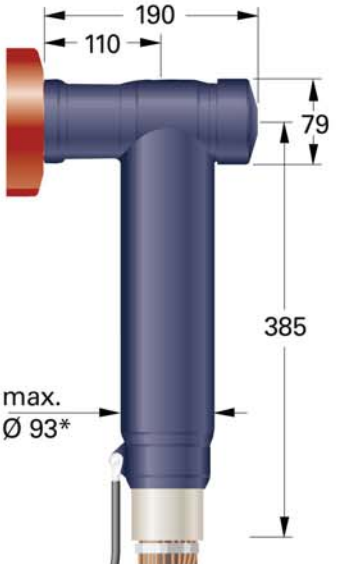
**5 Earthing eye and ground lead**
Provides a connection point for earthing the screen.

**6 Threaded pin**
A threaded pin together with a spring washer (wave type)and hex nut ensure a high performance electrical and mechanical contact with the bushing.

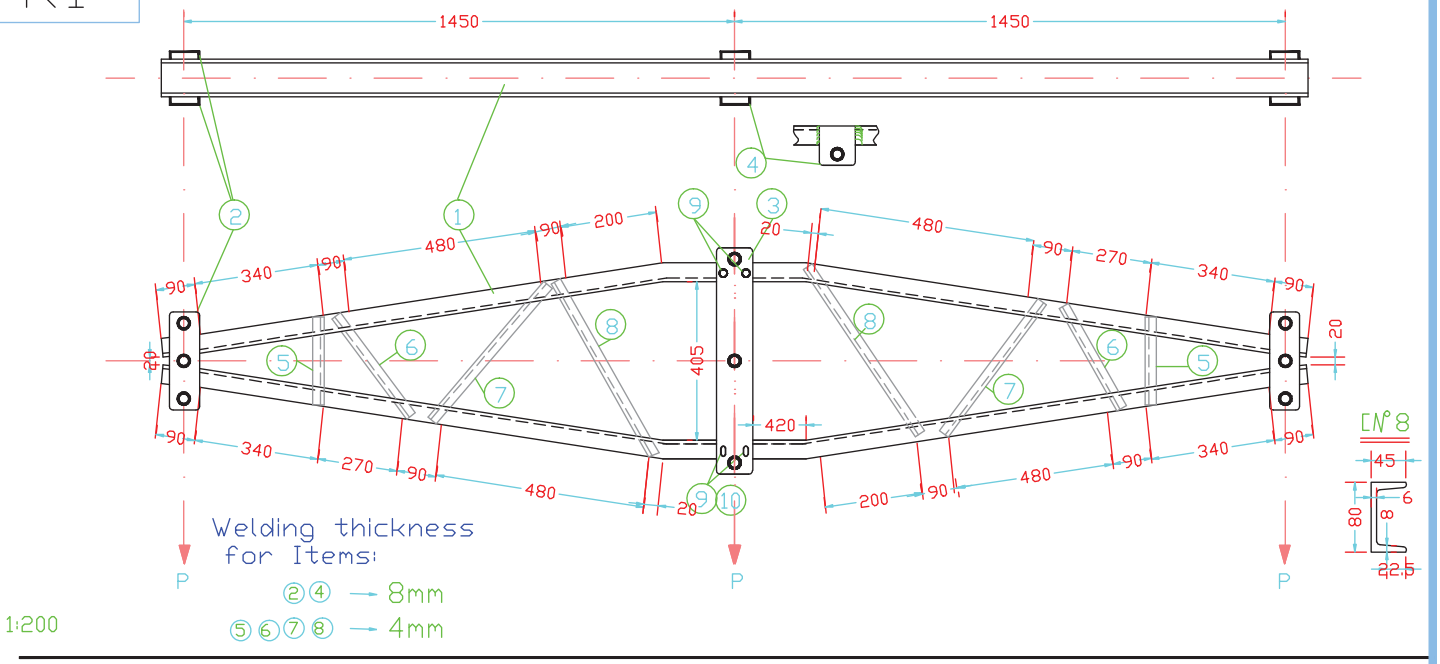
**7 Rear plug with test point**
Removable rear plug with capacitive test point.

**8 Test point**
The test point is used to determine whether the circuit is energised; alternatively it can be used for phasing.

**9 Conductive end cap**
Electrical screen and protection of the rear end of the separable connector.



# K1

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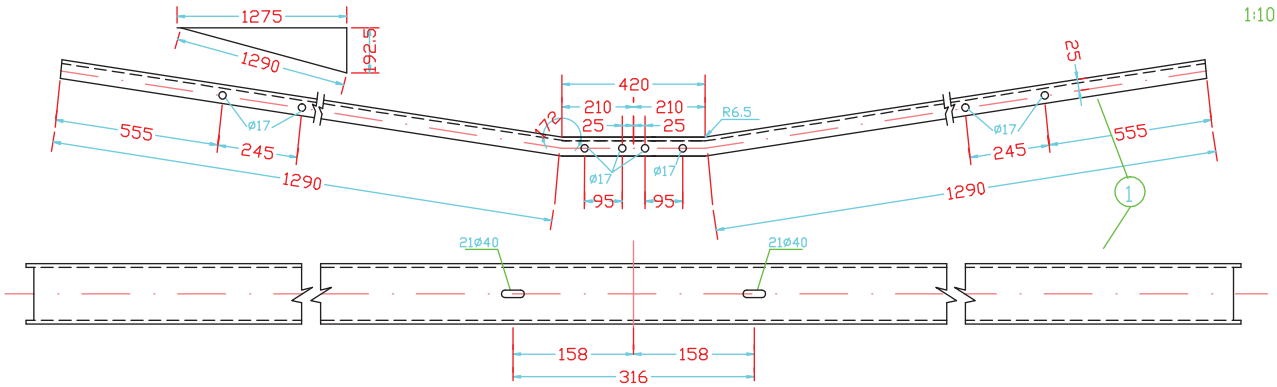
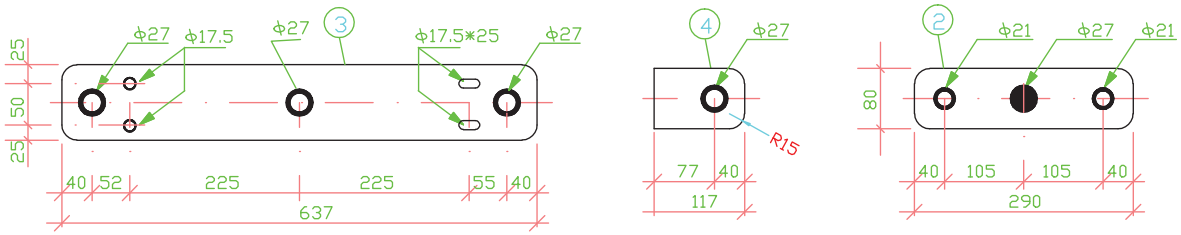



Bolts Required for
installation on the pole

4 UNC Bolt 3/4"*40mm
4 square washer 3/4"

Note: All component must
be Steel RST37.2 hot dip
galvanized

شركة توزيع كهرباء محافظات غزة
GEDCo

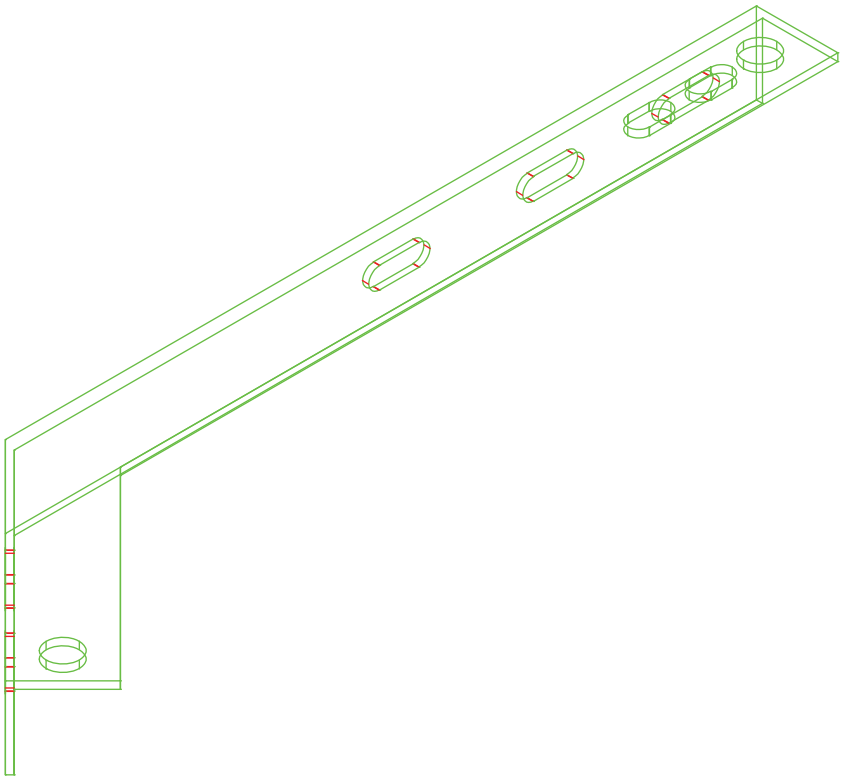
Prepared:Eng. ziad ALHoussaini

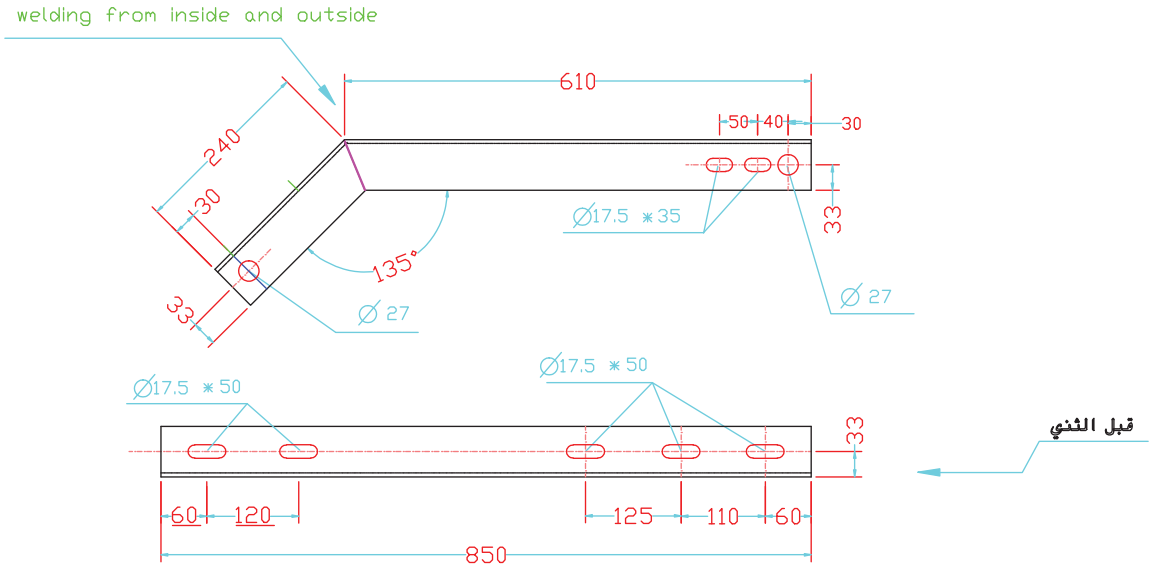
Checked By:Eng. Kamil Rabah

Hot Galvanized
M.V Lattice Pole
Tension Central
Arm K1

| Wieght kg | mm Total mesurment | mm Unit mm mesurment | Description | Item | Quant. |
|---|---|---|---|---|---|
| | | | square washer 5/8" | 10 | 2 |
| | | | UNC Bolt 5/8"-40 | 9 | 4 |
| 7.4 | 990 | 495 | Strut L40*40*4 | 8 | 2 |
| | 880 | 440 | Strut L40*40*4 | 7 | 2 |
| | 710 | 355 | Strut L40*40*4 | 6 | 2 |
| | 460 | 230 | Strut L40*40*4 | 5 | 2 |
| 1.2 | 234 | 117 | Plate □ 80/8 | 4 | 2 |
| 4 | 637 | 637 | Plate □ 100*8 | 3 | 1 |
| 5.8 | 1160 | 290 | Plate □ 80*8 | 2 | 4 |
| 51.8 | 6000 | 3000 | [N° 8 | 1 | 2 |
| 70kg | Total Weight | | | | |

K160/1






| Weight Kg | Unit mm mesurment | Description | Quant. |
|---|---|---|---|
| 4.6 | 850 | L60*60*6 | 1 |

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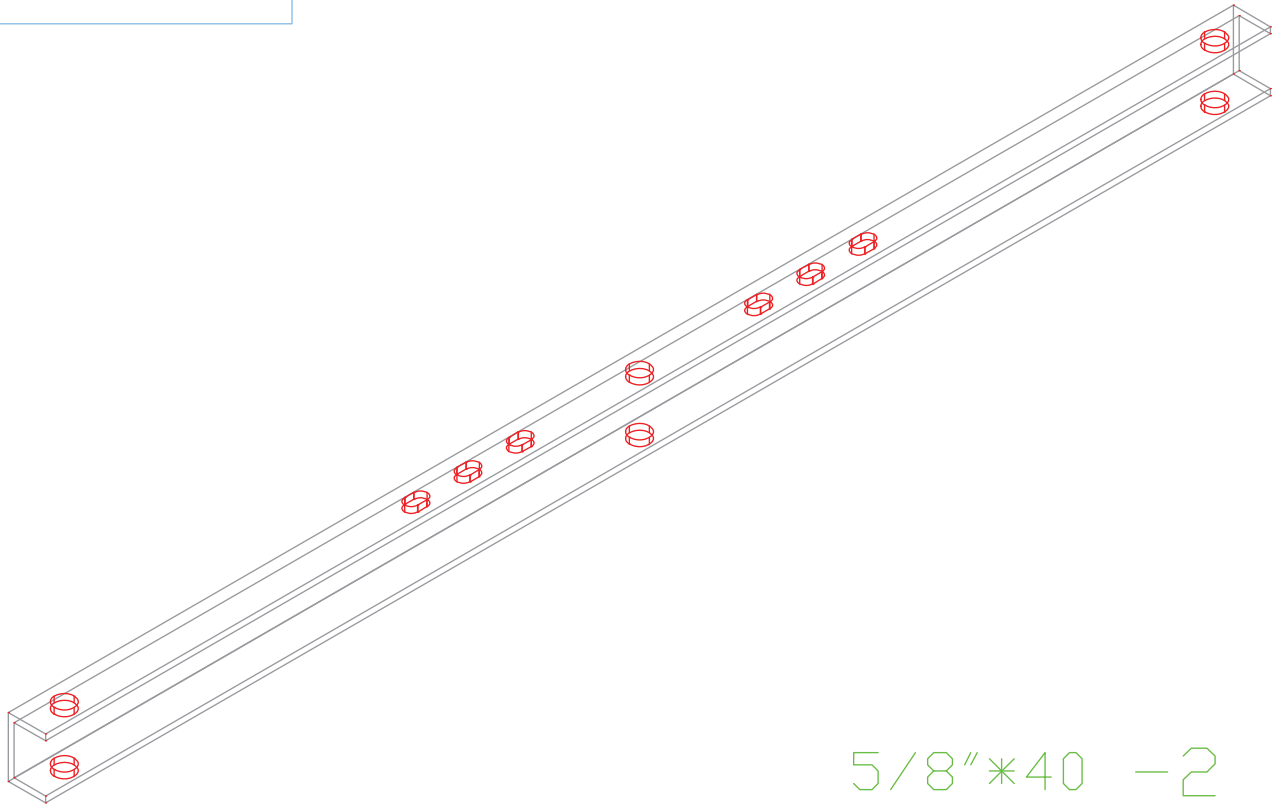
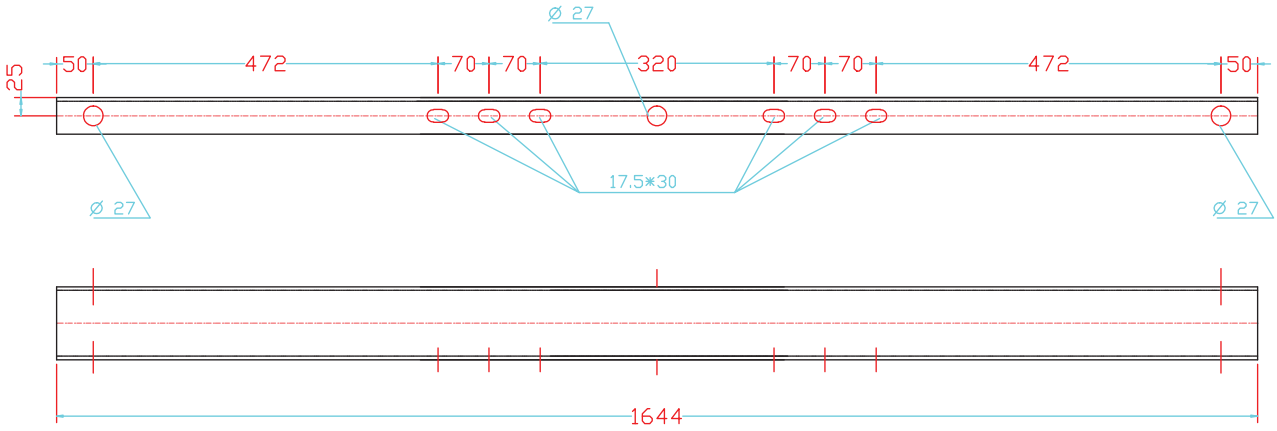
GEDCo
Prepared:Eng. ziad ALHoussaini
Checked By:Eng. Kamil Rabah

Hot Galvanized Auxilliary Steel Arm K160/1

Note: All component must be Steel RST37.2 hot dip galvanized

K160/3_B




| Weight Kg | Unit mesurment mm | Description | Quant. |
|---|---|---|---|
| | 1644 | CN° 8 | 1 |

Note: All component must be Steel RST37.2 hot dip galvanized

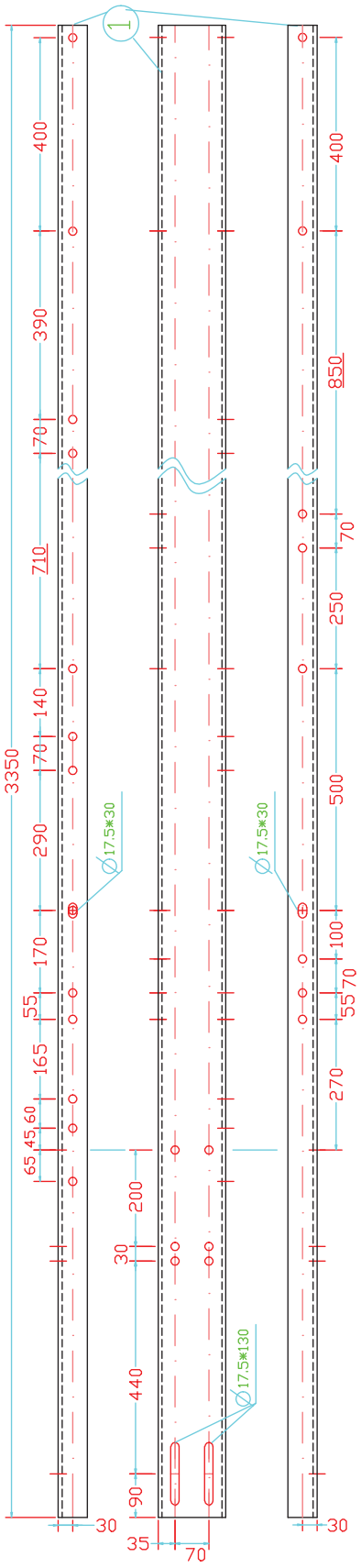
شركة توزيع كهرباء محافظات غزة
GEDCo

Prepared:Eng. ziad ALHoussaini

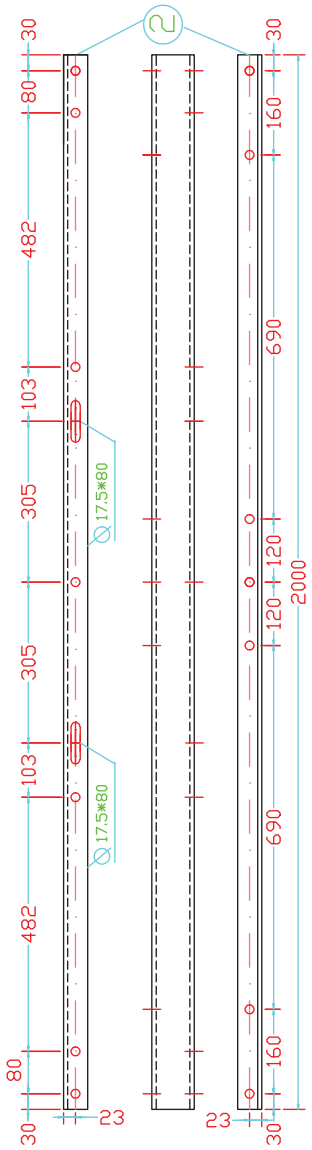
Checked By:Eng. Kamil Rabah

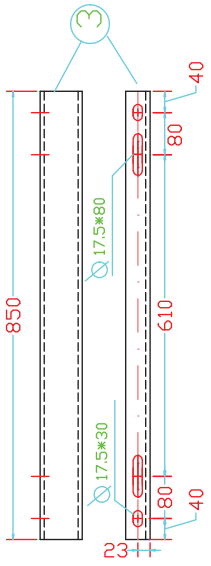
Hot Galvanized Auxilliary Steel Arm K160/3_B

K1558

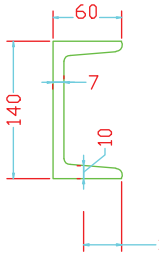



All the holes is Ø17.5

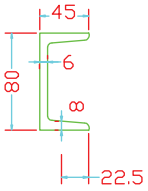



EN° 14




EN° 8




Bolts Required for installation on the pole

- 8 UNC Bolt 5/8"*40mm
- 8 square washer 5/8"
- 8 UNC Bolt 5/8"*35mm
- 8 Ring washer 5/8"

Note: All component must be Steel RST37.2 hot dip galvanized

| K.g | mesurment | mesurment | Description | Item | Quant. |
|---|---|---|---|---|---|
| 107.2 | 6700 | 3350 | CN° 14 | 1 | 2 |
| 34.5 | 4000 | 2000 | CN° 8 | 2 | 2 |
| 7.3 | 850 | 850 | CN° 8 | 3 | 1 |
| 149Kg | Total Weight | | | | |

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GEDCo

Prepared:Eng. ziad ALHoussini

Checked By:Eng. Kamil Rabah

Hot Galvanized Transformer
Isolator Side Arm K1558
3.35m long

# Technical Guarantees No. OT24_400

## 24 kv Heat Shrinkable Outdoor Termination Kit for XLPE Cable 1x400 $mm^2$

| No | Description | Unit | Requirements | Offered Data | Notes, Remarks , Ref to Documentation | Evaluation Committee Comments |
|---|---|---|---|---|---|---|
| 1 | Name of Manufacturer | | | | | |
| 2 | Country of Origin | | | | | |
| 3 | Standards | | IEC60502 & CENELEC HD629.1 S1 | | | |
| 4 | Max. Service Voltage (Um) | kV | 24 | | | |
| 5 | Outdoor Termination Material , form , Designation | | Heat Shrink Tubing and Molded Parts Shall be Flexible, Made from Specially Formulated Cross-Lined Polymeric | | | |
| 6 | Cable and Conductor Type | | 400 $mm^2$ Single Core Aluminium or Copper Conductor Cable with Copper Wire Shield | | | |
| 7 | Cable Insulation Type | | XLPE | | | |
| 8 | Insulating , Electrical Material and Rain Shed Brittle Temperature | $^oC$ | <-40 | | | |
| 9 | AC Dry withstand Voltage Test (1 minute without flashover and No Breakdown) | Kv | 65 | | | |

# Technical Guarantees No. OT24_400

## 24 kv Heat Shrinkable Outdoor Termination Kit for XLPE Cable 1x400 $mm^2$

| No | Description | Unit | Requirements | Offered Data | Notes, Remarks , Ref to Documentation | Evaluation Committee Comments |
|---|---|---|---|---|---|---|
| 10 | AC Dry withstand Voltage Test (6 Hour without flashover and No Breakdown) | Kv | 55 | | | |
| 11 | Impulse withstand Voltage Test 1.2 Micro Second Between Conductor & Screen Grounded (10 times without flashover and No Breakdown ) | kV | 150 | | | |
| 12 | DC withstand Voltage Test (15 minute without Flashover and No Breakdown) | Kv | 105 | | | |
| 13 | Influence of Humidity (100 Hours without traces of erosions extending up to insulation) | Kv | 14 | | | |
| 14 | Partial Discharge (Corona) Extinction Voltage <5 pc | kV | 21.5 | | | |
| 15 | **Heat Shrinkable Outdoor Termination Kit Parts** | | | | | |
| | Terminal Connector (for Aluminium or Copper Conductors) | | Required | | | |
| | Anti-Tracking Sleeve | | Required | | | |
| | Rain-Shed | | Required | | | |
| | Stress Control Sleeve | | Required | | | |
| | Stress Control Mastic | | Required | | | |
| | Binding wire | | Required | | | |
| | Worm Drive Clamp | | Required | | | |

# Technical Guarantees No. OT24_400

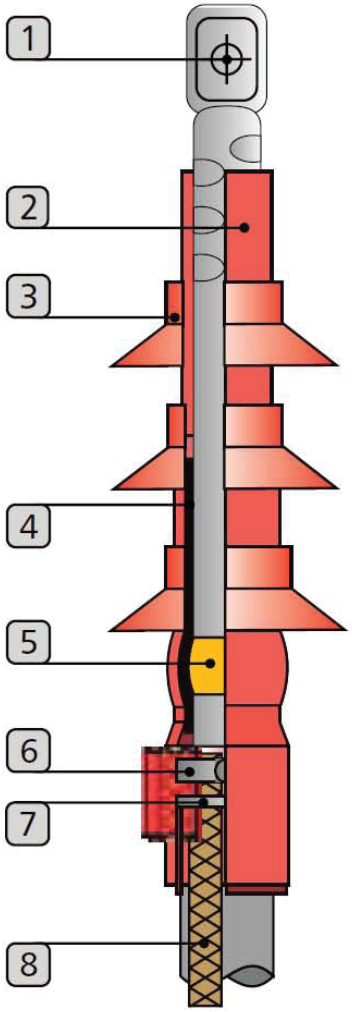
## 24 kv Heat Shrinkable Outdoor Termination Kit for XLPE Cable 1x400 $mm^2$

| No | Description | Unit | Requirements | Offered Data | Notes, Remarks , Ref to Documentation | Evaluation Committee Comments |
|---|---|---|---|---|---|---|
| 16 | Conductor Cross Sectional Area | $mm^2$ | 400 | | | |
| 17 | Termination Length | mm | 510 | | | |
| 18 | Rain Shed Diameter | mm | 135 | | | |
| 19 | Number of Rain Shed | No | 3 | | | |
| 20 | Attached Drawing | | Drawing No OT24_400 | | | |

Tenderer's Signature : ……..… Date: ……

OT24_400

24 kv Heat Shrinkable Outdoor Termination Kit for XLPE Cable 1x400 mm2




Outdoor Termination

## XLPE Termination

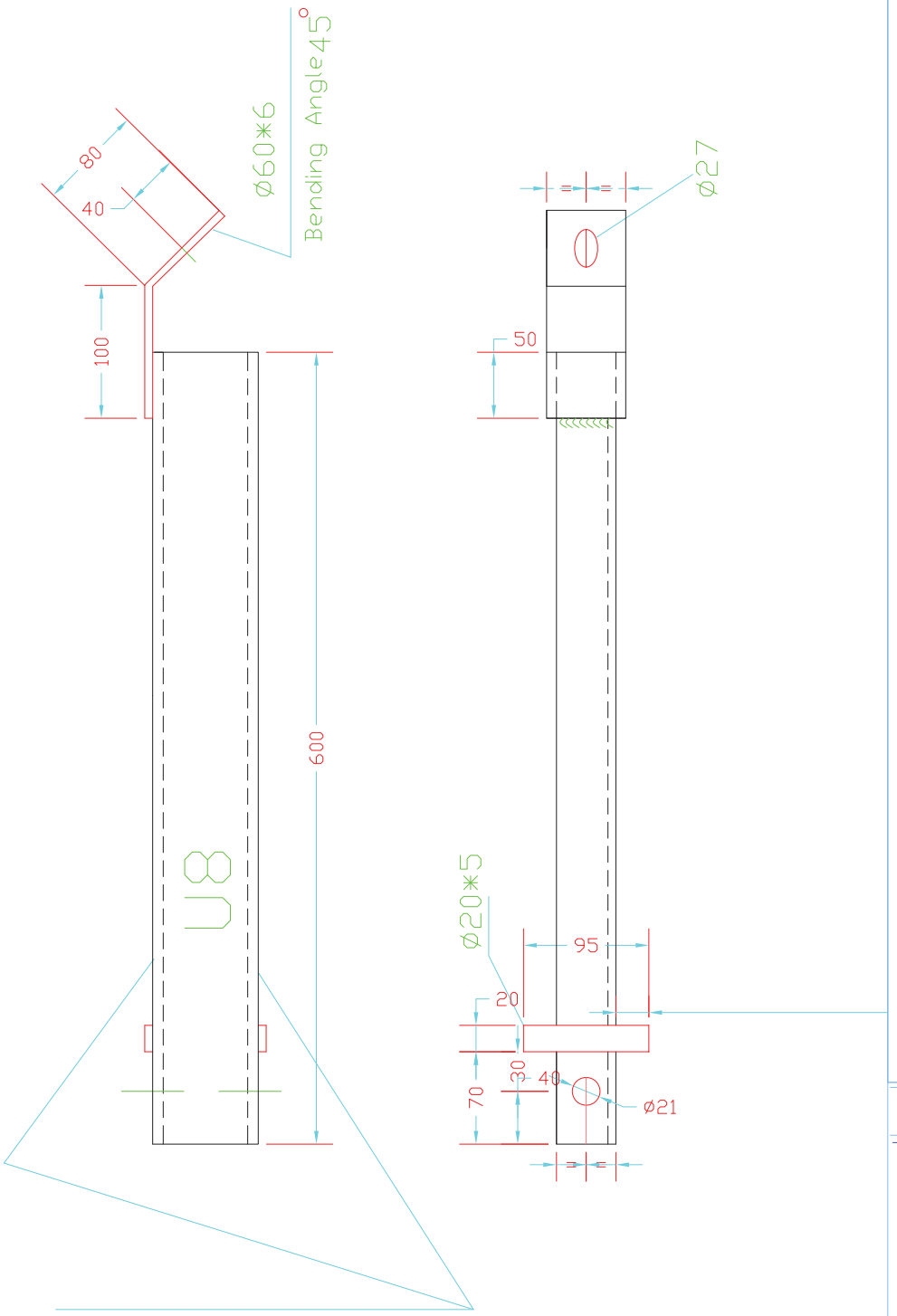
1 Terminal Connector
2 Anti-Tracking Sleeve
3 Rain-Shed
4 Stress Control Sleeve
5 Stress Control Mastic
6 Binding wire
7 Worm Drive Clamp
8 Copper Braid (Earthlings for Screen)

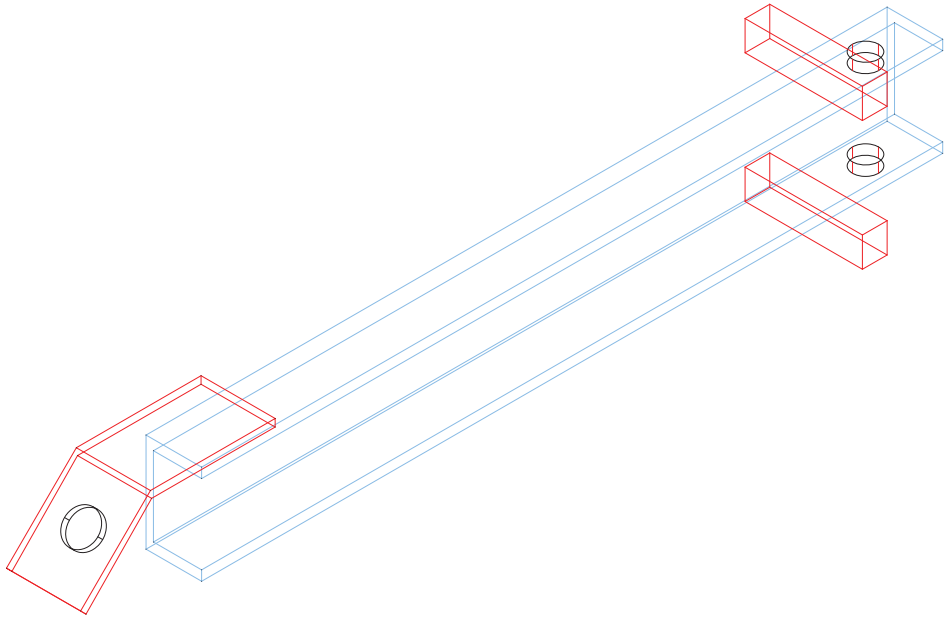
# Technical Guarantees No. PDI_1050

## 22kv Overhead Line Tension Polymeric Composite Insulator , with Ball and Socket with Creepage Distance 1050 mm

| No | Description | Unit | Requirements | Offered Data | Notes, Remarks , Ref to Documentation | Evaluation Committee Comments |
|---|---|---|---|---|---|---|
| 1 | Name of Manufacturer | | | | | |
| 2 | Country of Origin | | | | | |
| 3 | Design Standards | | IEC 61109 , IEC 60815 , BS 3288 | | | |
| 4 | Nominal System Voltage | kV | 24 | | | |
| 5 | Insulating Material | | Composite Polymer | | | |
| 6 | Housing | | Silicon | | | |
| 7 | Metal Parts | | Hot Dip Galvanized | | | |
| 8 | Number of Sheds | | | | | |
| 9 | Total Length | mm | | | | |
| 10 | Shed Diameter | mm | | | | |
| 11 | Min. Creepage Distance | mm | 1050 | | | |
| 12 | Min. Mechanical Failing Load | kN | 70 | | | |
| 13 | Socket and Ball Size | mm | Φ16 | | | |
| 14 | Weight | Kg | | | | |
| **15- Power Frequency withstand Voltage ( 1min)** | | | | | | |
| 15.1 | a)Dry | kV | 130 | | | |
| 15.2 | b)Wet | kV | 120 | | | |

K12171/1



Bolts Required for installation on the pole

2 UNC Bolt 3/4"*35mm

2 Ring washer 3/4"

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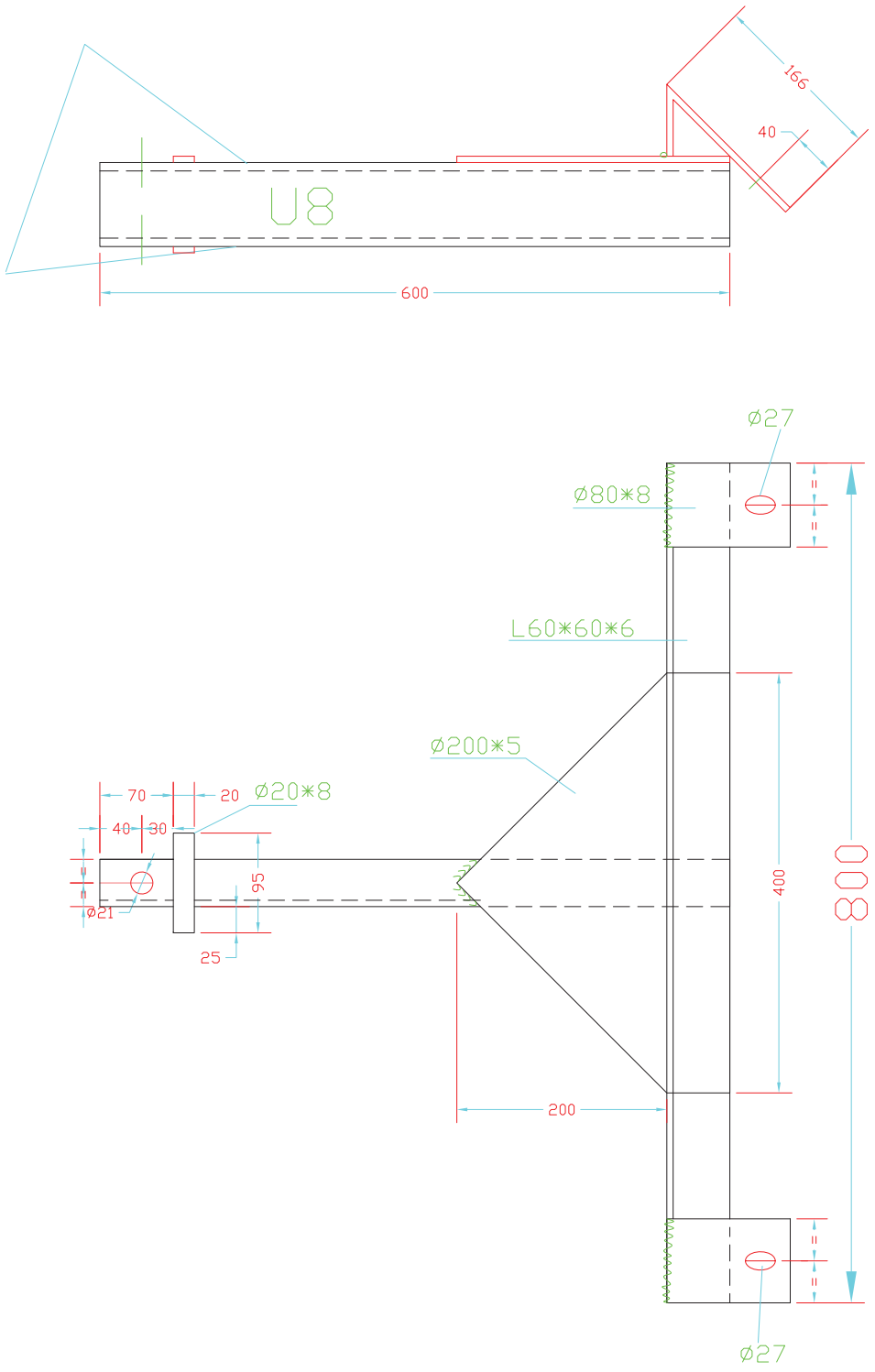
GEDCo

Prepared: Eng. ziad ALHoussaini

# Hot Galvanized Auxilliary Steel Arm K12171/1

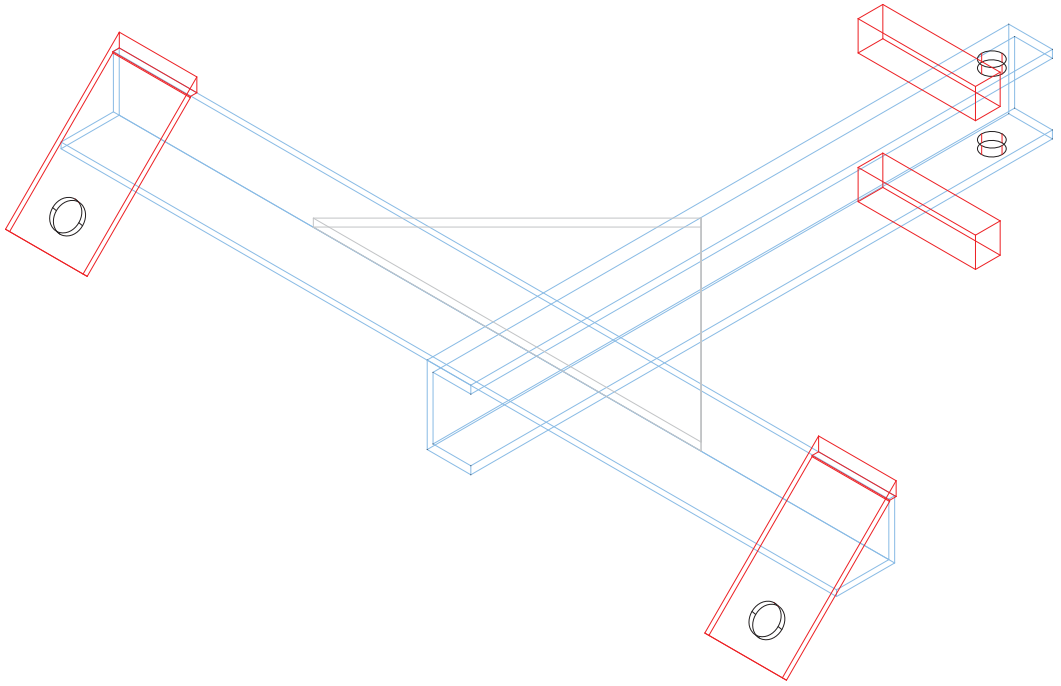
Page2

K17171/2




Page1

K17171/2



Bolts Required for installation on the pole

2 UNC Bolt 3/4"*35mm

2 Ring washer 3/4"

شركة توزيع كهرباء محافظات غزة

GEDCo

Prepared Eng. ziad ALHoussaini

# Hot Galvanized Auxilliary Steel Arm K12171/2