



Israel Electric Corporation Ltd. Grid engineering division Distribution Engineering Unit	
Edition no.: 8	Specification NPS-40 LOW VOLTAGE H.R.C. FUSE RAILS , SIZES "00", "2", AND "3"
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SPECIFICATION FOR LOW VOLTAGE H.R.C. FUSE RAILS
SIZES "00", "2", "3"

Edited by: Eng K. Saleh

Checked by: Eng A. Sharf

Approved by: Eng D. Toledano

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SCOPE

1.1. Scope of supply

The scope of supply consists of the manufacturing; testing, preserving, packing and furnishing of low voltage fuse rails sizes "00", "2", "3".

I.E.C cat. No.	Description
505750	Fuse rails size "00", up to 100A
505768	Fuse rails size "2", up to 400A
962894	Fuse rails size "00", up to 100A with draw out handle
505719	Fuse rails size "2", up to 400A with draw out handle
505776	Fuse rails size "3", up to 630A with draw out handle

1.2. Uses

The fuse rails are intended to be used in L.V. distribution and protection cabinets/boards. The fuse rails shall be mounted on busbars system, with a distance of 185 mm between the bars.

1.3. Utilizations

- 1.3.1.** In L.V networks.
- 1.3.2.** In L.V. distribution and protection cabinets/boards
- 1.3.3.** In L.V metering cabinets.

2. THRESHOLD CONDITIONS

Acc. to the attached documents of the procurement division.

3. DOCUMENTS AND SAMPLES FOR THE PROPOSAL

For the technical evaluation, the bidder shall submit to the Israel Electric Corp. together with his proposal the following documents:

- 3.1.** Valid ISO 9001 certificate of L.V fuse systems production as defined in the threshold conditions.
- 3.2.** Filled-in and signed Appendix "E" –"Statement of manufacturing experience" as required in the threshold conditions of the bid documents.
- 3.3.** Test reports for the proposed items as required in clause 6 of this specification. The test reports shall include all the tests required by the various standards and all data of the test results. The tests shall be performed by independent laboratories, authorized according to the International Standard ISO/IEC Guide17025.

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The type test shall be from the manufacturer or from the know-how supplier in case of know how agreement, see Appendix "B".

The test specified in clause 6.3 of this specification may be performed in supplier's internal laboratory, and shall include all the data (test + test equipment description).

- 3.4. Appendix C: schedule for prototype approval, signed by the manufacturer.
- 3.5. Appendix D: Completed and filled in summary of data, signed by both the bidder and manufacturer.
- 3.6. Appendix "F" "Statement of obligation" – conform to specification requirements signed by both the bidder and the manufacturer.
- 3.7. Description of the plastic materials used for the production of the products described in this specification.
- 3.8. Detailed drawings for each of the items offered. The drawings must be detailed to the fullest (including: manufacturer's part number, standard of manufacturing, dimension, tolerance, material of each part, plating, marking etc.).
- 3.9. Assembly instructions or the mounting of the fuse rails inside the cabinets for distribution and protection.
- 3.10. Appendix H "Statement of obligation- I.E.Corp. suppliers" signed by the Bidder.
- 3.11. One (1) sample of each of the proposed/similar items– the sample shall be acc. to the spec. requirements.
The sample shall be from the manufacture production line or from the know-how supplier in the case of know how agreement. Supplying and receiving back the sample (for non-winning bidders) – see the bid documents.

REMARKS:

- ❖ Existing supplier (supplier who supplied the ordered item to the IECorp. in the last five (5) years) is exempted from submitting the samples if the supplier will provide to I.E.Corp. a filled-in and signed Appendix "G" Statement of obligation – same product.
- ❖ Bidder which will not submit all the above may be disqualified.
- ❖ "**Similar**" means the same fuse rails with another cable connection, from the same material and in the same technology.
- ❖ **The above mentioned documents shall be in English or Hebrew. All dimensions and quantities must be in M.K.S. (Meter, Kilogram, Second) measurement units.**
- ❖ **All the technical documentation shall be presented to IEC in organized files/folders (a hard copy is no needed in case of electronic submission documents).**
- ❖ The files need to be organized in folders named after each P/N of the proposed items, and each main folder contains 4 sub folders:

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- 1) Documents of the proposal.
- 2) Summary of data.
- 3) Test reports.
- 4) Technical documents for each proposed item. Each proposed item **shall be** in a separate folder.

4. MANUFACTURING STANDARDS

The **Fuse rails** shall be designed, manufactured and tested according to the requirements of this specification, taking into consideration the recommendations And requirements of the latest editions of the following standards:

IEC 60269-1 – Low voltage fuses – General requirements.

IEC 60269-2 – Low voltage fuses – Supplementary requirements for fuses for use by authorized persons (fuses mainly for industrial application) – Examples of standardized systems of fuses A to J.

VDE 0636-2011 – Low voltage fuses – Supplementary requirements for fuses for use by authorized persons (fuses mainly for industrial application).

IEC 60947-1 – Low-voltage switchgear and controlgear – General rules.

IEC 60947-3 – Low-voltage switchgear and controlgear – Switches, disconnectors, switch-disconnectors and fuse-combination units.

DIN 50018 - Testing in a saturated atmosphere in the presence of sulfur dioxide.

REMARKS:

- ❖ Standards **IEC 60269-1**, **IEC 60269-2**, **VDE 0636-2011** are related for all types of fuse rails.
- ❖ Standards **IEC 60947-1**, **IEC 60947-3** are related only for fuse rails with draw-out handles.
- ❖ IEC reserves the right not to evaluate and not to refer to fuse rails not conforming to the standards and not tested in according with above-in mentioned standards.
- ❖ If the present specification contains requirements which differ from those of the above mentioned Standards, the requirements of this Specification shall take precedence.

5. TECHNICAL REQUIREMENTS

5.1. For all types of fuse rails

- 5.1.1.** The fuse rails shall be manufactured according to **IEC 60947-3** and shall conform to all standards as specified in paragraph **4** accordantly of this Specification.

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- 5.1.2. The fuse rails shall be three phase and shall enable mounting of H.R.C fuse links, NH type, according to standard **IEC 60269-2**.
- 5.1.3. The base of the fuse rails shall be made of hot molded reinforced polyester/similar material, according to all the requirements of the standard.
- 5.1.4. The fuse rails shall be suitable for screw mounting on busbars system with distance between bars of 185 mm.
- 5.1.5. The contacts shall be silver plated, minimum 5 microns thickness.
- 5.1.6. Cable connection terminals: screws + spring washer\washer shall be installed in the incoming/outgoing terminals (shall not be supplied in separate package).
- 5.1.7. All other metal parts shall be plated with: zinc for non-copper parts and tin for copper parts, minimum 20 microns thickness.
- 5.1.8. The fuse rails shall be tested acc. to DIN 50018 in a SFW 2,0 atmosphere – 5 cycles.
- 5.1.9. All live parts of the fuse rails shall be covered by insulated material to eliminate any possible accidentally touch.
All the plastic parts shall be from a self-extinguishing material.
- 5.1.10. All the bars and contacts shall be made of electronic copper minimum F25, without cracks.
- 5.1.11. The copper strips used for connecting the conduit, shall be fixed to the base of the fuse rails and shall withstand the closing moment according to the standard.
The conductive part from the contacts to the connection chamber shall be inside the fuse rails and shall be closed on all sides to eliminate possible accidentally touch.
- 5.1.12. All fuse rails with draw out handles (size "00" and "2" and size "3") will have disconnecting grade of AC-22B minimum, according to **IEC 60947-3** for minimum 400V.
- 5.1.13. All the fuse rails with draw out handles shall permit the cable connection from top or bottom without any changes (only by modification of the position of the plastic cover of the handles).
- 5.1.14. The fuse rails shall be without tropical climate condition including up to 100% relative humidity and temperature differences between day and night up to 50⁰c, acc. to **IEC 60068**.
- 5.1.15. Each bus bar from the connection of the cable to the fuse jaw shall be made of one unit without welds.
- 5.1.16. The jaw springs must be grasped to the jaw so that they do not loosen when the fuse rail is fastened to the Bus bars by screwdriver or during transportation.
- 5.1.17. Cover for Clamps/Cable lugs:
 - The cover shall be made of one rigid unit and not connected with screws.
 - The cover shall be locked properly to the base of the fuse rails while the clamps / cable lugs are installed up or down.

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- The cover shall not interfere the proper operation of the operation handle.
- The cover shall not harm the bus bars and shall cover the biggest connection cross section cable lugs (cable lugs after pressing).
- Between the cover and the clamps there will be no chance of accidental contact with the bus bar.

5.1.18. For fuse rails with draw out handle:

- The handle shall be adjusted to the fuse designated on the fuse rail and shall fit the maximum width specified in the fuse standard **IEC 60269-2**.
- The handles should be suitable for use with an insulated glove.
- Removing the fuse from the jaws will be done first from the top and then from the bottom.
- Removable handle shall be easily dismount / removed from the fuse rail, separately for each phase.
- Release of the fuse from the removable handle shall be done easily and without using tools.

5.2. For fuse rails size "00" up to 100A (without handles)

- 5.2.1.** Requirements included in this clause are in addition to those stated in chapter **5.1. – For all fuse rails.**
- 5.2.2.** The width of the fuse rails shall not exceed 50 mm.
- 5.2.3.** The connection of the cables to the fuse rails shall be throughout 3 fast connection type terminals ("V" type), allowing connection of copper/ aluminum cable of 10 mm² to 95mm² cross section – rm and 25 mm² to 95mm² cross section – sm.
- 5.2.4.** Connection terminals shall be covered by a cover, made of transparent self-extinguishing polycarbonate material. The cover shall allow its dismantling. This cover shall be a protection against accidental touch.
- 5.2.5.** On both sides of the fuse rails base, shall be insulated partitions throughout its length, high enough to cover the fuses mounted inside the fuse rails or the contacts shall be covered by a proper insulated cover.
- 5.2.6.** Insulated self-extinguishing partitions shall be installed between the phases. The partition shall permit also to sign the uses of the specific phase.
- 5.2.7.** The jaws in the fuse rails shall be covered by an insulated material cover, withstanding contact's temperature.
- 5.2.8.** Mounting and drawing out of the fuses will be done with an insulated handle for operating fuse-link NH type fuses, according to **IEC 60269-2**.

5.3. For fuse rails size "00" up to 100A (having draw out handles)

- 5.3.1.** Requirements included in this chapter are in addition to those stated in clause **5.1. – For all fuse rails.**
- 5.3.2.** The width of the fuse rails shall not exceed 50 mm.

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- 5.3.3. The connection of the cables to the fuse rails shall be throughout 3 fast connection type terminals ("V" type), allowing connection of copper/ aluminum cable of 10 mm² to 95mm² cross section – rm and 25 mm² to 95mm² cross section – sm.
- 5.3.4. Connection terminals shall be covered by a cover, made of transparent self-extinguishing polycarbonate material. The cover shall allow its dismantling. This cover shall be a protected against incidental touch.
- 5.3.5. The fuse rails shall have draw out handles, for each phase separately. The handle shall be made from a plastic transparent material, self-extinguishing, and shall withstand the temperature of contacts. The handle shall be designed so that the operation with fuses will be fast, safe and easy. The handle shall include an arrangement for checking the voltage absence at the two ends of the fuse
- 5.3.6. The jaws in the fuse rails shall be covered by an insulated material cover, withstanding contact's temperature.

5.4. For fuse rails size "2" up to 400A (without handles)

- 5.4.1. Requirements included in this chapter are in addition to those stated in clause 5.1. – **For all fuse rails.**
- 5.4.2. The width of the fuse rails shall not exceed 110 mm.
The connection of the cables to the fuse rails shall have insert nuts and screws M12X30 according to standard DIN EN ISO 4017.
REMARK:
The default option of the connection to the fuse rail shall be like specifies in this clause. (Without extra addition of fast connection terminal)
The IEC reserves the right (if necessary) to order, in addition to the screws for cables connection with cable lugs - the fast connection terminals type.
The supplier shall be prepared to supply acc. to this arrangement.
- 5.4.3. The part of the fuse rails, in which the cables are connected, shall be covered with a cover made of transparent, self-extinguishing polycarbonate material, which can be easily dismantled. This cover shall be a protection against accidental touch, specific in case of using 240mm² cable lugs for aluminum.
- 5.4.4. The jaws in the fuse rails shall be covered by an insulated material cover, withstanding contacts temperature.
- 5.4.5. In the fuse rails lower part there'll be a partition of insulated material, to separate different phases. This partition shall be integral part of the base of the fuse rails, and shall provide separation also for 240mm² cable lugs. The partition shall stand the torque needed to mount the cable lugs.
- 5.4.6. The connection chamber shall have a cover, made of transparent, self-extinguishing polycarbonate, that'll cover the whole connection area, and

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shall be fixed to the fuse rails. The cover shall enable its easy dismantling.
The cover shall protect against incidental touch.

5.4.7. The cover shall be suitable, in length and width, to cover the whole connection area and specific in case of use of using 240mm² Al. cable lugs.

5.4.8. Mounting and drawing out of the fuses shall be done with an insulated handle for operating fuse-link NH type fuses, according to **IEC 60269-2**.

5.5. For fuse rails size "2" up to 400A (having draw out handles)

5.5.1. Requirements included in this chapter are in addition to those stated in clause 5.1. – **For all fuse rails**.

5.5.2. The width of the fuse rails shall not exceed 110 mm.

5.5.3. The connection of the cables to the fuse rails shall have insert nuts and screws of M12X30 acc. to DIN EN ISO 4017.

REMARK:

The default option of the connection to the fuse rail shall be like specifies in this clause. (Without extra addition of fast connection terminal)

The IEC reserves the right (if necessary) to order, in addition to the screws for cables connection with cable lugs - the fast connection terminals type.
The supplier shall be prepared to supply acc. to this arrangement.

5.5.4. Connection terminals shall be covered by a cover, made of transparent self-extinguishing polycarbonate material; the cover must be made to allow its dismantling. This cover shall be a protection against incidental touch.

5.5.5. The fuse rails will have draw-out handles, for each phase separately. The handle shall be made of a self-extinguishing plastic transparent material and shall withstand the temperature of contacts. The handle shall be designed so that the operation with fuses will be fast, safe and easy. The handle shall include an arrangement for checking the voltage absence at the two ends of the fuse.

5.5.6. The cover shall be suitable, in length and width, to cover the whole connection area and specific in case of use of using 240mm² Al. cable lugs.

5.5.7. Self-extinguishing insulated partitions shall be installed between the phases. These partitions shall be also used for marking the circuit.

5.5.8. In the fuse rails lower part there'll be a partition of insulated material, to separate different phases. This partition shall be integral part of the base of the fuse rails, and shall provide separation also for 240mm² cable lugs. The partition shall stand the torque needed to mount the cable lugs.

5.5.9. The jaws in the fuse rails shall be covered by an insulated material cover, withstanding contact's temperature. The covers of the jaws in which the disconnecting operation will be equipped with adequate spark protectors (arc clammers).

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5.6. For fuse rails size "3" up to 630A (having draw out handles)

- 5.6.1.** Requirements included in this chapter are in addition to those stated in clause 5.1. – **For all fuse rails.**
- 5.6.2.** The width of the fuse rail shall not exceed 130mm.
- 5.6.3.** The fuse rails shall be equipped with an arrangement for band clamps "P" or "T" type (depending on the fitting place) and shall be with the same cross section area of fuse rail bus bar, and also shall permit the connection with 2 cable lugs Al 240mm² (including screws).
- 5.6.4.** The connection of the outgoing conduits to the fuse rails shall have insert nuts and screws M12X40 mm with conical spring washer according to standard DIN EN ISO 4017.

REMARK:

The default option of the connection to the fuse rail shall be like specifies in this clause. (Without extra addition of fast connection terminal)

The IEC reserves the right (if necessary) to order, in addition to the screws for cables connection with cable lugs - the fast connection terminals type.

The supplier shall be prepared to supply acc. to this arrangement.

- 5.6.5.** The fuse rails shall have draw out handles, for each phase separately. The handle shall include all devices & accessories needed for holding the fuse. The handle shall include an arrangement for checking the voltage absence at the two ends of the fuse. The handle shall be designed so that the operation with the fuses will be fast, safe and easy.
- 5.6.6.** Each handle shall have marking arrangement for its circuit. The handle shall be made of self-extinguishing plastic material and be able to withstand the temperature of the contacts.
- 5.6.7.** The jaws of the fuse rails shall be covered by a cover, made of self-extinguishing insulated material, withstanding the contacts temperature that will be dressed on the jaws.
- 5.6.8.** The part of the fuse rails, in which the cables are connected, will be covered by a cover made of transparent, self-extinguishing polycarbonate material. This cover shall be a protected against accidental touch, and shall cover the whole area of the connections.

5.7. Service conditions

The service conditions shall be in general according to IEC 60269 with the following additions and changes.

The equipment shall be suitable for indoor mounting in the following environmental conditions:

- 5.7.1.** Severe atmospheric and industrial air pollution, coal dust, sea salt.
- 5.7.2.** High atmospheric humidity as experienced in coastal or desert areas.
- 5.7.3.** Annual variation in air temperature: -10°C to +55°C

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- 5.7.4. Annual mean air temperature: +25°C
- 5.7.5. Maximum relative humidity: 90%
- 5.7.6. Average relative humidity: 70%
- 5.7.7. Average ambient temperature measured over a period of 24 hours does not exceed: +35°C
- 5.7.8. Maximum difference of ambient temperature from day to night: +25°C
- 5.7.9. Long summer periods with OTCs of sunshine (1120 W/sqm) according to IEC Publication 60721-3-4/95.
- 5.7.10. Altitude: up to 1000m.

6. TESTS

- 6.1. **Type test** – Acc. to IEC 60269-2 and IEC 60947-3.
- 6.2. Routine test – Acc. to IEC 60947-1.
- 6.3. **Coating thickness:** The test should verify the material and thickness of the coating according to chapter 5.1.

7. MARKING

Each fuse rails shall have high quality, durable, lasting marking according to standard IEC 60947-3.

The following information shall be marked on each proposed item:

- Manufacturer's name or trademark
- Fuse-switch symbol (see Table 1, IEC 60947-3)
- P/N
- Size
- Production date
- Applicable rated values (U, I, Hz ...)
- Power loss of the fuse-link.
- Number of the relevant standard
- Utilization category.
- Q.C. stamp.
- Degree of protection (IP) (for fuse rails with handles).
- Torque fastening of fuse rail terminal screw (in Nm) (carved on each terminal/clamp).
Other possibility offered - only with approval by IECorp.
- Cross-sectional area of the appropriate cables (carved on each terminal/clamp).
Other possibility offered - only with approval by IECorp.

REMARK:

The marking of the rated current and the rated voltage shall be discernible from the front when a fuse-link has not been fitted.

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8. PACKING

- 8.1.** Each fuse rails shall be packed into a polyethylene bag, made of adequate thickness (minimum 40 microns).
- 8.2.** Each fuse rails shall be put inside a cardboard box. The following information shall be printed on the box in large letters:
- Name of the manufacturer or logo
 - Country of origin
 - Name of supplier
 - Name of item
 - I.E.C. item's catalogue no
 - Supplier part no
 - Quantity of pcs. per box
 - Date of manufacturing.
 - Gross weight of the box.
- 8.3.** The supplier shall receive, prior to start of production, IECorp approval for packing and delivery of the items to IECorp.
- 8.4.** Each IECorp's catalog No, shall be packed in separate cardboard boxes.
- 8.5.** The cardboard boxes shall be supplied in a seaworthy cardboard or wooden box, shipped on EURO PALLET 1200x800x150 mm (DIN EN 13698-1) appropriate for fork lifting and durable packed for shipping and transportation. The gross weight of each pallet should not exceed 1250 kg.
- 8.6.** Number of items in the cardboard box is given in the following table:

No.	IEC P/N	Number of items per pallet
1	505750	100
2	962894	100
3	505768	70
4	505719	45
5	505776	35-40

9. QUALITY ASSURANCE

The manufacturer Quality Assurance Program meets the requirements described in ISO standard 9001 and IEC specifications.

10. QUALITY CONTROL

Quality control requirements will be according to **I.E.C.** standard **Q-APP-02 -PR Rev. 5.**

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11. PROTOTYPE APPROVAL

11.1. Prototype approval for new suppliers.

New supplier – Supplier that didn't supply the ordered item to the IECorp. in the last five (5) years prior to the last date of tender submission.

11.1.1. In a period of max four (4) months from the notification of award, and before production for IECorp of all ordered items, the Contractor shall manufacture one unit of FUSE RAIL as a prototype for the Israel Electric Corp. approval.

11.1.2. For purposes of the Prototype approval, the manufacturer shall perform the complete type tests and special tests as required in paragraph 6 of this specification.

11.1.3. The contractor shall be responsible to conduct successfully all the necessary tests, and to deliver to the Israel Electric Corp. all the necessary required reports, in a manner, which will not interfere with or delay any of the time schedules, pertaining to any action or undertaking, required of the winning bidder, including, but not limited to delivery schedule. Such responsibility shall include proper and reasonable advance notifications to the Israel Electric Corp., prior to any action, required of it.

If type and special tests have already been conducted with reference to the identical equipment which is offered by the proposed and the Israel Electric Corp. approves the reports, pertaining to such tests, the Israel Electric Corp. shall have a right (but not a duty) to waive all or part of the required tests.

11.1.4. The contractor shall submit to the Israel Electric Corp. set of detailed drawings, materials specification for each component, Q.A. and Q.C. procedures, as required in this specification, including type test reports and QC details.

The drawings shall show the overall outside dimensions, mounting dimensions, gross weight. The Contractor shall also submit a list for all the relevant drawings for fabrication. These drawings shall be approved by the Israel Electric Corp. Each modification on the above drawings shall be approved by the Israel Electric Corp.

All data and descriptive material in the above drawings shall be in English or Hebrew. All dimensions shall be stated in metric system.

11.1.5. The Israel Electric Corp. reserves the right to cancel the order for the supply of equipment if the prototype will not be approved by the Israel Electric Corp. In any case, the contractor shall not resume manufacture of the rest of the ordered equipment before receiving the Israel Electric Corporation's final approval of the prototype.

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11.2. Prototype approval for existing suppliers.

Existing supplier – Supplier who supplied the ordered item to the IECorp. in the last five (5) years prior to the last date of tender submission

11.2.1. Existing supplier may ask to be exempted from prototype approval if in the technical bid the supplier will provide to IECorp, filled-in and signed Statement of obligation attached in Appendix "G".

I.E.Corp. will forward answer to the supplier during the technical stage of the tender.

12. DELIVERY APPROVAL CONDITIONS

The successful bidder (henceforth referred to as "the contractor") shall submit for I.E.C approval:

12.1. Detailed routine test report including results and C.O.C before each delivery.

The certificate shall include in addition to the requirements of the relevant standard the following indications:

- Date of manufacture of the examined instruments.

12.2. In case of know how agreement, all the tests for the proposed item shall be acc. to par. 6 and from the "know how" recipient.

12.3. The Israel Electric Corp. reserves the right to verify the compliance of the delivered equipment with this specification. Any delivery which will not fulfill the requirements of this specification will be rejected.

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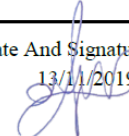
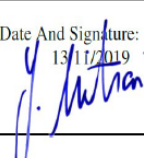
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APPENDIX "A"

APPENDICES FOR CONTRACTS / ORDERS QUALITY REQUIREMENTS **Q – APP – 02-PR Rev.5 (11/2019)**

1. GENERAL

- 1.1 The quality requirements specified herein constitute an integral part of the Contract and should be implemented without any additional cost to the Purchaser or any change in the Contract schedule. These requirements are in addition to, and without derogation from other applicable provisions of the Contract, if any, including, without limitation, the general provisions of the General Conditions – Annexure "A", the specific requirements of Annexure "M" and the Specification requirements – Annexure "B".
- 1.2 The Contractor shall make all the necessary arrangements and prepare all the required and necessary means to enable IEC's Quality Control Unit Representative(s) to review, observe, audit, inspect, test and survey the Work - at any of the facilities where Work or any part thereof is performed, including those of the Contractor and of its Sub-Contractor(s). Upon Purchaser's request the Contractor shall submit un-priced copies of its orders to the Sub-Contractor(s) pertaining to the Work/Contract, clearly marked with the Purchaser's name and Contract number, specifically indicating Contractor's quality requirements from its Sub-Contractor(s), to allow verification of proper implementation of the quality requirements.
- 1.3 The Contractor shall nominate promptly after Contract award a quality engineer or a quality specialist to control and manage the quality requirements of the Contract. This person shall have the authority and responsibility with respect to maintaining the quality plan, coordinating the tests and inspections and verifying compliance with the quality requirements.
- 1.4 Manufacturing shall not commence prior to respective drawing approval by the Purchaser.
- 1.5 All materials used in the manufacture of the Equipment shall conform to the Specification, approved drawings, and accepted Standards. Use of alternate materials and subassemblies is not accepted unless a specific and documented authorization is granted in writing by the Purchaser.

PREPARED BY	CHECKED BY	APPROVED BY
B. Ben-Akiva Q.C. Unit Quality Engineering	K. Arbiv Manager Of Quality Control I.E.C	Y. Mitrani Deputy Head of Procurement Division I.E.C
Date And Signature: 05/11/2019 	Date And Signature: 13/11/2019 	Date And Signature: 13/11/2019 

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2. DEFINITIONS, CLASSIFICATIONS AND ABBREVIATIONS

- 2.1 CORRECTIVE ACTION (CA) – As defined in ISO 9000:2005.
- 2.2 QUALITY PLAN (QP) – a plan, prepared by the Contractor especially for the Contract, in accordance with ISO 10005, to ensure that the Work meets all the quality requirements.
- 2.3 INSPECTION AND TEST PLAN (ITP) – a plan, in the format of Exhibit "A" attached hereto or any other form approved by the Purchaser, specifying all the inspections and tests for the Work (including witness and hold points) covering all aspects of design, type tests, first article inspection, manufacturing, in process inspection, product qualification, final inspection/s and test/s, packing, transportation, erection and commissioning.
- 2.4 QCUR - the Purchaser's Quality Control Unit Representative and/or any other representative authorized by it.
- 2.5 WITNESS POINT (WP) - a planned visit of the QCUR to Contractor's facility, before delivery of any portion of the Work, in order to witness a specific inspection and/or test detailed in the ITP.
- 2.6 HOLD POINT (HP) – the same as WP but with the distinction that the Contractor is not permitted to proceed with its planned activities without having received Purchaser's written approval.
- 2.7 NON CONFORMANCE (NC) - deviation from any specified quality characteristic of the Work.
- 2.8 NON CONFORMANCE REPORT (NCR) - a report, on Contractor's numbered serial form, describing the details of a Non Conformance, from its detection through its disposition and corrective action(s).
- 2.9 QUALITY CHARACTERISTIC – any identifiable property of the Work (i.e. physical, chemical, functional, visual, technical, environmental, economical and statistical requirement of applicable standard/code, etc.)
- 2.10 WORK - equipment and services to be provided by the Contractor, all as further detailed in the Contract.
- 2.11 SPECIAL PROCESS - irreversible manufacturing process, or a process which requires special or specific tools.

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3. QUALITY PLAN AND INSPECTION AND TEST PLAN

- 3.1 The Contractor shall submit, in accordance with the documentation submission schedule (Annx. J) or if not specified therein within fourteen (14) days after Contract award, detailed Inspection and Test Plan, for Purchaser's review and approval. Any subsequent alterations to these plans shall be submitted for Purchaser's approval prior to start of any portion of the Work that may be affected by such alterations.
- 3.2 Contractor shall not commence purchasing and manufacturing prior to receiving Purchaser's written approval to the Quality and/or the Inspection and Test Plans.

4. DOCUMENTATION

- 4.1 The Contractor shall submit for Purchaser's review, as an integral part of the Quality Plan, the quality and manufacturing/operations procedures pertaining to the Work, and shall promptly provide any explanations as may be requested by the Purchaser with respect thereto.
- 4.2 The Contractor shall submit to the Purchaser, for review, comment and approval, in accordance with the documentation submission schedule but at least twenty one (21) days prior to the implementation of special processes, the relevant procedures including all the process qualifications and the employees' certifications for said special processes.

5. INSPECTIONS AND TESTS

- 5.1 The Contractor shall provide test and inspection equipment and/or any other means required in accordance with applicable industrial standards, all as may be required for the proper execution of the Work and especially for the execution of the ITP .
- 5.2 The Contractor shall ensure that all tests or inspections (including source inspections) forming part of the Work shall be carried out by proficient organizations or individuals certified to EN 45004 (level A or C). Any independent inspector shall be subject to Purchaser's approval.
- 5.3 Type tests, Routine tests and Sample tests (where applicable) shall be carried out in accordance with the provisions set forth in Annexure "B", Annexure "M", or as otherwise specified in the Contract.

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- 5.4 All other qualification tests (for mechanical equipment) shall be witnessed by the QCUR, and subsequently all the relevant quality records shall be submitted for Purchaser's review. The 1st article/piece test shall be considered a witness point and the serial manufacturing shall commence only after its successful completion.

6. INSPECTION NOTIFICATION

Unless otherwise specified in the General Conditions, Annexure "A", or elsewhere in the Contract:

- 6.1 The Contractor shall provide the Purchaser with preliminary notification of readiness for testing and inspection of each part of the Work two (2) months prior to such readiness. Final notification shall be provided to the Purchaser two (2) weeks prior to such readiness in the format of Exhibit "B".
- 6.2 Purchaser shall provide Contractor with notice of its attendance and shall bear the expenses related to such attendance. In the event the Purchaser's representatives fail to attend the tests or inspections as scheduled, the Contractor may proceed whilst properly recording the test procedures and all the test results for timely submission to Purchaser, except in the case of specific hold points agreed upon in the Contract, for which Contractor shall require Purchaser's permission to continue.
- 6.3 The witnessing of the Contractor's tests and inspection(s) by the Purchaser shall in no way whatsoever relieve the Contractor of any of its responsibilities or liabilities under the Contract, nor shall it be interpreted in any way as implying acceptance of the Work.

7. QUALITY RECORDS

- 7.1 The Quality Records referenced in this clause shall be submitted in Hebrew and/or in English.
- 7.2 Contractor shall make available to Purchaser, upon Purchaser's request, for review and comment, at Purchaser's premises or at any other mutually agreed upon place in Israel, the quality records of any - Type test, Routine test, Qualification test, First Article Inspection/Test, Process qualification, Special process and/or any other inspection/test/examination called for by the Contract.

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- 7.3 Original Material test reports and Test and Inspection certificates, including quality records of WP not witnessed by the QCUR, signed and attested by the Contractor, and containing actual measured values, in accordance with EN 10204-3.1/3.2, shall be submitted by the Contractor to the Purchaser within 5 days following their generation for approval by IEC.
- 7.4 The submission of the applicable quality records shall constitute a condition precedent to delivery of the relevant portion of the Work.

8. HANDLING OF NONCONFORMANCES AND CORRECTIVE ACTIONS

- 8.1 It is the Contractor's obligation to report to the Purchaser of any nonconforming item/event pertaining to the Work. The relevant documentation and quality records shall be submitted to the Purchaser immediately after said NC has been observed.
- 8.2 In case the Contractor fails to report of a non conformance in due time, Purchaser may request Contractor to dismantle the nonconforming part (to witness the NC) at no additional cost to the Purchaser.
- 8.3 Following observation of a Non Conformance, the Contractor shall propose, get Purchaser's approval and thereafter implement suitable corrective action/s (CA). In case a CA is not implemented and the Work is adversely affected, the Purchaser may request the Contractor to stop related activities and hold the Contractor responsible for delays in the Contract schedule until the problem is reasonably resolved.

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EXHIBIT A

I&T Plan FORM

CONTRACTOR'S: Name, I&T Plan Title, The Product Inspected/Tested, and Document Identity & Approval. PURCHASER'S: Name And Project's Name And Location. Purchase Order No. & Materiel No. or C1 Item No.									
No	The inspection or test	Applicable documents	Wp/Hp or Other	Inspected / Tested By				The Report / Certificate and Its Ref. Std/ Procedure	Remarks
				Subcont/ Supplier	Contractor	Purchaser	Other		
Approval By The Contractor's Quality Assurance/Control									

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EXHIBIT B

INSPECTION NOTIFICATION.

Supplier details:	
-------------------	--

1 Project:

2 Contract No.:

3 Owner: Israel Electric Corporation Ltd.

4 Contractor:

5 Address of Place of inspection:

Company:

Contact Person:

Telephone No.:

Fax No.:

6 Proposed Date of Inspection: preliminary: confirmed:

The Inspection and/or Testing shall be carried out on the following Items :

7 Description of item:			
8 Description of Inspection:	Intermediate stage	Final inspection	
9 Reference to ITP/other Documents:			
It is certified that: a) Approved drawings/quality plans/data sheets/any relevant specifications for the items as above shall be available at the time and place of inspection. b) Internal inspections and/or testing of the items as above have been carried out by the Contractor to his satisfaction. The Contractor finds the items satisfactorily for participation in or witnessing of inspection and/or testing by the Customer / any other person authorized under or designated in accordance with the Contract.			
Date:		Signature	Contact Person:

Participation Contractor	☐ yes	☐ no	Date: _____	Signature: _____
Participation Purchaser	☐ yes	☐ no	Date: _____	Signature: _____

Comments:

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APENDIX "B"

KNOW HOW

1. Where a "Know-how" agreement is required under the tender/inquiry documents, or under the specification, such "Know-how" agreement must include the following commitments, or substantially similar commitments, on part of the provider of the know-how:
 - 1.1. To transfer to the know-how recipient, all the technical documents and drawings, necessary for the manufacturing, fabrication, testing, proper packing, operating and maintaining of the proposed equipment;
 - 1.2. To adequately instruct and provide technical support to the know recipient in the field of manufacture/fabrication, design, quality control, testing and repair of the proposed equipment;
 - 1.3. To conduct an inspection of the manufacturing line of the know-how recipient and to approve its adequacy to manufacture the proposed equipment up to the standards of the know-how provider;
 - 1.4. To participate in type tests of the proposed equipment(of the know how recipients manufacture) and to instruct/support the know-how recipient in undertaking corrective act/procedure, if required or approved by the IEC;
 - 1.5. To provide technical support/instructions to the know-how recipient during the first two years following the start of manufacturing by the know-how recipient;
2. The IEC waives any and all claims it may have against the know-how provider, for any conduct, act or omission, on part of the know-how provider, or any of its employees, agents, or representatives, directly or indirectly related to the transfer of know-how, the know-how agreement, or any action, or omission thereunder.

This waiver of claims shall insure to the benefit of the know-how provider and to the benefit of any of its employees, agents or representatives.
 Nothing said herein shall release the know-how recipient from any duties or commitments, undertaken by it, as part of its proposal to the IEC, or in connection with any failures or omissions to carry out such duties, or commitments

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APPENDIX "C" - schedule for prototype approval

Remarks:

1. Starting point is the date on which a binding contractual obligation has been created, as specified in the invitation to submit proposal.
2. One month before performance of the type tests the contractor shall submit the final test schedule.
3. The period of time for the delivery approval from the starting point as indicated above will not take more than 4 months.

No.	STAGE	WEEK															
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	- Submitting detailed manufacturing drawings including Q.A. and Q.C. procedure of required equipment. - C.O.C of all items supplied, including details raw material, coatings, etc. - Inspection and test plan including in the Quality Plan. - Plain and schedule of the type test																
2	Israel Electric Corp. approval for the above documents And Completion or modification.																
3	Execution and submission of the type test report for the proposed item.																
4	Submitting of Prototype.																
5	Final I.E.Corp. approval.																

Signature: _____

Date: _____

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APPENDIX "D" - SUMMARY OF DATA

Bidder's name: _____

Bidder's phone no.: _____

Bidder's fax: _____

Bidder's E-mail: _____

Manufacturer's name and address: _____

Manufacturer's tell/fax: _____

Manufacturer's E-mail: _____

Manufacturing country: _____

(Insert all data in this column)

1. Documents:	
• Is ISO 9001 certificate attached? (yes/no)	
• Is Statement of manufacturing Experience signed (appendix E)? (yes/no)	
• Are know-how agreements attached?(Appendix B) (yes/no)	
• Is schedule for prototype approval signed? (Appendix C) (Yes/no)	
• Is "obligation documents - conform to specification requirements" signed? (appendix F) (yes/no)	
• Is " Statement of obligation- IECorp suppliers " signed (appendix H)?(yes/no)	
• Are the following documents attached: - Detailed drawings for each item (yes/no)? - Description of the plastic materials (yes/no)? - Assembly instructions (yes/no)?	
• Are test reports attached? (yes/no)	
• Is " Statement of obligation – same product " (appendix G)?(yes/no)	
• Are one sample of each item provided?(yes/no)	
2. Technical requirements for all types:	
• Is marking accordingly to clause 7 in this specification? (Yes/no)	

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• Are the screw\washer installed in the ingoing's/outgoing's terminals? (Yes/No)	
• Are the contacts pure silver plated, minimum 5 microns? (Yes/No)	
• Are all the copper parts plated with tin of minimum 20 microns? (Yes/No)	
• Is the type of the copper minimum E-CuF25? (yes/no)	
• Are all the not copper parts plated with zinc of minimum 20 microns? (Yes/No)	
• Are the fuse rails tested acc. to DIN 50018 in a SFW 2,0 atmosphere – 5 cycles? (yes/no)	
• Are all the plastic parts made from self-extinguishing material? (Yes/No)	
3. Is the bidder offer fuse rails size "00" without handle (yes/no) , if yes fill the following:	
• Manufacturer's part number	
• Rated operational current (A)	
• Rated operational voltage (V)	
• Rated frequency (Hz)	
• Impulse withstand voltage (kV)	
• Torque fastening of fuse rail screw (Nm)	
• Rated insulation voltage (V)	
• Utilization category	
• Are the cables cross section V type with 25-95 mm² sm and 10-95 mm²? (yes/no)	
• Maximum permissible power loss of fitted fuse- link (W)	
• The thickness of the silver coating (micro meter)	
• The thickness of the tin coating (micro meter)	
• The thickness of the zinc coating (micro meter)	
• Width of the fuse rail (required 50mm)	
4. Is the bidders offer fuse rails size "00" with draw out handle (yes/no) , if yes fill the following:	

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• Manufacturer's part number	
• Rated operational current (A)	
• Rated operational voltage (V)	
• Rated frequency (Hz)	
• Degree of protection (IP)	
• Impulse withstand voltage (kV)	
• Torque fastening of fuse rail screw (Nm)	
• Rated insulation voltage (V)	
• Rated making capacity (kA)	
• Rated breaking capacity (kA)	
• Utilization category	
• Minimum capacitive current which can be disconnected (A/no. of cycles)	
• Number of mechanical operating cycles.	
• Rated conditional short circuit (kA)	
• Rated conditional short circuit current with fuses(kA)	
• Maximum permissible power loss of fitted fuse- link (W)	
• Are the cables cross section V type with 25-95 mm ² sm and 10-95 mm ² ? (yes/no)	
• Width of the fuse rail (required 50mm)	
• The thickness of the silver coating (micro meter)	
• The thickness of the tin coating (micro meter)	
• The thickness of the zinc coating (micro meter)	
• Are the insulating materials of the fuse switch withstand the abnormal heat and fire as required in IEC 60947-1 clause 7.1.1. (yes/no)	
• Are the draw out handles separated for each phase and it operated with the fuse safe and easy? (yes/no)	
5. Is the bidders offer fuse rails size "2" without handle (yes/no) , if yes fill the following:	

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• Manufacturer's part number	
• Rated operational current (A)	
• Rated operational voltage (V)	
• Rated frequency (Hz)	
• Impulse withstand voltage (kV)	
• Torque fastening of fuse rail screw (Nm)	
• Rated insulation voltage (V)	
• Maximum permissible power loss of fitted fuse- link (W)	
• The screws of the outgoing connection conduits, are M12X30? (yes/no)	
• Are the cables connections can fit 240 mm ² cable lugs? (yes/no)	
• Width of the fuse rail (required 110 mm)	
• The thickness of the silver coating (micro meter)	
• The thickness of the tin coating (micro meter)	
• The thickness of the zinc coating (micro meter)	
6. Is the bidders offer fuse rails size "2" with draw out handle (yes/no) , if yes fill the following:	
• Manufacturer's part number	
• manufacturing standard of the item	
• Rated operational current (A)	
• Rated operational voltage (V)	
• Rated frequency (Hz)	
• Degree of protection (IP)	
• Impulse withstand voltage (kV)	
• Torque fastening of fuse rail screw (Nm)	
• Rated insulation voltage (V)	
• Maximum permissible power loss of fitted fuse- link (W)	

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• Rated making capacity (kA)	
• Rated breaking capacity (kA)	
• Utilization category	
• Minimum capacitive current which can be disconnected (A/no. of cycles)	
• Number of mechanical operating cycles.	
• Number of on-bolt operating cycles at rated current <u>corresponding to the service conditions</u> (A/No. of cycles)	
• Rated conditional short circuit (kA)	
• Rated conditional short circuit current with fuses(kA)	
• Maximum permissible power loss of fitted fuse- link (W)	
• The screws of the outgoing connection conduits, are M12X30? (yes/no)	
• Are the cover protection suitable for using 240 mm ² cable lugs? (yes/no)	
• Width of the fuse rail (required 110 mm)	
• The thickness of the silver coating (micro meter)	
• The thickness of the tin coating (micro meter)	
• The thickness of the zinc coating (micro meter)	
• Are the insulating materials of the fuse switch withstand the abnormal heat and fire as required in IEC 60947-1 clause 7.1.1. (yes/no)	
• Are the draw out handles separated for each phase and it operated with the fuse safe and easy? (yes/no)	
7. Is the bidders offer fuse rails size "3" with draw out handle (yes/no) , if yes fill the following:	
• Manufacturer's part number	
• Rated operational current (A)	
• Rated operational voltage (V)	
• Rated frequency (Hz)	

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• Degree of protection (IP)	
• Impulse withstand voltage (kV)	
• Torque fastening of fuse rail screw (Nm)	
• Rated insulation voltage (V)	
• Maximum permissible power loss of fitted fuse- link (W)	
• Rated breaking capacity (kA)	
• Rated breaking capacity (kA)	
• Utilization category	
• Minimum capacitive current which can be disconnected (A/no. of cycles)	
• Number of mechanical operating cycles.	
• Number of on-bolt operating cycles at rated current <u>corresponding to the service conditions</u> (A/No. of cycles)	
• Rated conditional short circuit (kA)	
• Rated conditional short circuit current with fuses(kA)	
• The screws of the outgoing connection conduits, are M12X40 with conical spring washer 3-3.95 mm? (yes/no)	
• Are the T cooper plates can fit two 240 mm ² cable lugs? (yes/no)	
• Width of the fuse rail (required 130mm)	
• The thickness of the silver coating (micro meter)	
• The thickness of the tin coating (micro meter)	
• The thickness of the zinc coating (micro meter)	
• Are the insulating materials of the fuse switch withstand the abnormal heat and fire as required in IEC 60947-1 clause 7.1.1. (yes/no)	
• Are the draw out handles separated for each phase and it operated with the fuse safe and easy? (yes/no)	

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APPENDIX "E" - STATEMENT OF MANUFACTURING EXPERIENCE

I, _____ (enter name), hereby state the following:

1. I _____ (enter name) , am authorized to sign this statement on behalf of _____ ("the Manufacturer").
2. I hold the position of _____
_____ (enter job title and description, i.e. partner, production manager, sales manager, etc.) at the Manufacturer.
3. I have been in this position since _____ (enter date).
4. I am providing this statement with regards to I.E.C's tender number _____ ("the Tender").
5. The facts/details given in this statement have been checked and verified by me.
6. _____ (the Manufacturer) has experience in production of the proposed item or similar, for at least 3 years in the last 5 years, prior to tender submission.

***similar means: Fuse rails in the same technology but for different cable connection.**
7. I hereby undertake to provide, upon IEC's request and at its sole discretion, any Other documents (reference list, quantity, dates of supply, letter of Recommendations etc.) Or other Information requested for this tender for Purposes of proving said experience.

Signature

Date

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APPENDIX "F" - Statement of obligation

We hereby undertake that the proposed items will be accordingly to the requirements specified in the IEC Specification NPS-40/7.

Tender No.: _____

Manufacture country: _____

Manufacture name: _____

Supplier name: _____

Date: _____

Supplier Signature: _____ Manufacture Signature: _____

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APPENDIX "G" - Statement of obligation – same product.

We hereby undertake that the proposed products (specified in the table below) already supplied and approved by IECorp. and will be identical to the previously supplied to IECorp. (item without any changes) and will be accordingly to the requirements of this specification.

Tender No.: _____

Manufacture country: _____

Manufacture name: _____

Supplier name: _____

Date: _____

No	I.E.C cat. No.	Manufacturer P/N	Supplier P/N	Date of most recent supply	Bidder signature	Manufacturer signature
1	505750					
2	505768					
3	962894					
4	505719					
5	505776					

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APPENDIX "H" - Statement of obligation –IECorp suppliers

We hereby undertake that the proposed products will also be provided to other suppliers who purchase them for IECorp. And will be identical to the products that approved by IECorp. (Item without any changes) and will be accordingly to the requirements of this specification.

Tender No: _____

Manufacture country: _____

Manufacture name: _____

Supplier name: _____

Date: _____

Supplier signature: _____

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APPENDIX "I" - Revision History:

Version	Date	Update by	Modifications
7	01/06/2022	Khaled Saleh	The revision includes the following: 1. Revised due to update necessary. 2. Technical documentation update: a. One detailed drawings organized in electronic file. b. Adding existing supplier (exempted from submitting samples). 3. Technical requirement: a. Cable cross section terminal update for size 00 (10-95 rm). b. Screw terminal update for size 3 (M12x40). 4. Adding pallet packaging quantity. 5. Marking update. 6. Prototype approval: a. Adding new supplier. b. Adding existing supplier. 7. Appendix A –update to the latest version. 8. Appendix C –schedule for prototype approval - update. 9. Appendix D – summary of data- update. 10. Appendix F - Statement of obligation - Addition. 11. Appendix G - Statement of obligation – same product - Addition. 12. Appendix H - Statement of obligation - provide to IECorp suppliers - Addition. 13. 14. General errors are corrected in all section.

Israel Electric Corporation Ltd.
Marketing Division
National Network Unit

Edition no.: 8	Specification NPS-40 LOW VOLTAGE H.R.C. FUSE RAILS , SIZES "00" , "2" , AND "3"
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8	15/03/2023	Khaled Saleh	1. General errors are corrected in all section. 2. Removing the screw holes in the terminals for fast connection (for fuse rail size 2 and 3). 3. Marking update.
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