



Israel Electric Corporation Ltd. Grid Engineering Division Distribution Engineering Unit	
Edition no.: 5	Specification NPS 87 MODULAR ENCLOSURES AND MOUNTING ASSEMBLIES
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SPECIFICATION FOR MODULAR ENCLOSURES
AND
MOUNTING ASSEMBLIES

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1. SCOPE

1.1. Scope of supply

This specification defines the ISRAEL ELECTRIC CORPORATION (hereafter I.E.C technical requirements for insulated enclosures and mounting assemblies, (hereafter M.A), to be used as main equipment and accessories for connection of the electric network to private dwellings.

No.	I.E.C cat. No.	Description
1	1280536	ENCLOSURE ISOLATED SMALL (S), CIN-3 / D3, HIGH COVER
2	1280643	LOW COVER CLEAR H=50MM FOR CIN-3 SMALL ENCLOSURE
3	1280767	HIGH COVER CLEAR H=100MM FOR CIN-3 SMALL ENCLOSURE
4	1280817	PROTECTIVE COVER FOR CIN-3 ENCLOSURE
5	1280841	ENCLOSURE ISOLATED MEDIUM (M), CIN-4 / D4, WITHOUT COVER
6	1280882	HIGH COVER CLEAR H=50MM FOR CIN-4 ENCLOSURE
7	1280916	HIGH COVER CLEAR H=100MM FOR CIN-4 ENCLOSURE
8	1281005	BASE FOR CIN-4 ENCLOSURE
9	1281088	M.A 4X(3X100A) FOR 3XCIN-4 MEDIUM ENCLOSURE
10	1281161	ENCLOSURE ISOLATED LARGE (L), CIN-46 / D46, HIGH COVER
11	1281229	HIGH COVER CLEAR H=100MM FOR CIN-46 ENCLOSURE
12	1281237	PROTECTIVE COVER FOR CIN-46 ENCLOSURE
13	1281260	BASE FOR CIN-46 / D46 ENCLOSURE
14	1281559	SIDE COVER SET 350MM INCLUDE SIDE COVER, INSULATED SCREW AND PLATE
15	1281617	RUBBER SEAL 180MM BETWEEN ENCLOSURES
16	3235421	COVER FOR M.A FOR BRANCHING 4X70MM ² FOR CIN-4 MEDIUM ENCLOSURE
17	3267747	MOUNTING LUGS SYSTEM FOR DOUBLE ENCLOSURE
18	4130878	METERING BOARD FOR METERING CABINET, POLYCARBONAT
19	4235206	ENCLOSURE ISOLATED LARGE (LB) FOR BRANCHING, LOW COVER, WITH TERMINALS 4X240MM ²
20	4235230	MOUNTING ASSEMBLY BRANCHING FOR TERMINAL 4X95MM ² , MOUNTED IN INSULATED MEDIUM ENCLOSURE (M), FOR POLYESTER CABINET FOR METERS
21	4235248	ENCLOSURE ISOLATED MEDIUM (MB) FOR BRANCHING, LOW COVER, WITH TERMINALS 4X95MM ²
22	588590	PLASTIC SHORT SCREW FOR BOX COVER H=50MM
23	610204	BASE FUSE SCREWED 63A, DO2, E-18, LOW VOLTAGE, WITH RING PROTECTIVE COVER
24	644955	LOW COVER H=50MM FOR D3 SMALL ENCLOSURE
25	644989	METAL BASE PLATE FOR D3 ENCLOSURE
26	644997	HIGH COVER H=50MM FOR D4 ENCLOSURE
27	645002	HIGH COVER H=100MM FOR D4 ENCLOSURE
28	645051	NEUTRAL TERMINAL 16MM ² FOR MOUNTING ON BUSBAR

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29	645069	TERMINAL 35MM2 FOR MOUNTING ON BUSBAR
30	645077	HIGH COVER CLEAR H=50MM FOR D46 ENCLOSURE
31	645085	HIGH COVER CLEAR H=100MM FOR D46 ENCLOSURE
32	645671	MOUNTING LUGS SYSTEM FOR SINGLE ENCLOSURE D4/D3 (WITH 4 LUGS AND SCREWS)
33	645697	MOUNTING LUGS SYSTEM FOR DOUBLE ENCLOSURE D4X2 (WITH 2 LUGS AND SCREWS)
34	645713	SCREW WITH INSULATED HEAD M6 16MM
35	645739	SCREW WITH INSULATED HEAD M6 20MM
36	645754	SCREW WITH INSULATED HEAD M6 30MM
37	645978	METERING BOARD FOR CENTRAL METERING, POLYCARBONAT
38	850537	ENCLOSURE ISOLATED MEDIUM (M), CIN-4 / D4, HIGH COVER
39	866053	ENCLOSURE ISOLATED SMALL (S), CIN-3 / D3, LOW COVER
40	866137	M.A 3X63A FOR MEDIUM ENCLOSURE
41	866178	M.A 3X63A SMALL ENCLOSURE
42	962639	MOUNTING LUGS SYSTEM FOR SINGLE ENCLOSURE CI4/CI3 (WITH 4 LUGS AND SCREWS)
43	962662	MOUNTING LUGS SYSTEM FOR DOUBLE ENCLOSURE CI4X2 (WITH 2 LUGS AND SCREWS)
44	963264	ENCLOSURE ISOLATED MEDIUM (M), CIN-4 / D4, LOW COVER
45	963322	ENCLOSURE ISOLATED MEDIUM (M), 2XCIN4 / 2XD4, LOW COVER, (2 ENCLOSURES)
46	963348	ENCLOSURE ISOLATED MEDIUM (M), 3XCIN4 / 3XD4, LOW COVER, (3 ENCLOSURES)
47	963371	ENCLOSURE ISOLATED MEDIUM (MC) FOR CABLES, CIN-4K / D4K, LOW COVER
48	963397	ENCLOSURE ISOLATED LARGE (L), CIN-46 / D46, LOW COVER
49	963421	ENCLOSURE ISOLATED LARGE (LB) FOR BRANCHING, CIN-46 / D46, LOW COVER, WITH TERMINALS 4X150MM2
50	963447	ENCLOSURE ISOLATED LARGE (LC) FOR CABLES, CIN-46K / D46K, LOW COVER
51	963504	M.A 6X63A FOR MEDIUM ENCLOSURE
52	963520	M.A 9X63A FOR MEDIUM ENCLOSURE
53	963553	M.A 3X100A FOR MEDIUM ENCLOSURE
54	963595	M.A FOR BRANCHING 4X35MM2 FOR MEDIUM ENCLOSURE
55	963637	M.A FOR FUSES 3X400/160A FOR LARGE ENCLOSURE
56	963652	M.A FOR FUSES 3X400/315A FOR LARGE ENCLOSURE

1.2. Uses

The enclosures, equipped with the mounting assemblies are used for protection of cables and feeding lines:

- Branching of cables
- Connection of incoming cables
- KWH metering installment
- Mounting and installing of other electrical equipment (such as MCBs, MCCs, switches, etc).

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1.3. Utilizations

In L.V (400V) networks.

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 as defined in threshold conditions.
- 3.2. Appendix E: Statement of manufacturing experience.
- 3.3. Type Test Report which shall attest that the required enclosures and M.A or the "Similar" enclosures and MA are tested according to the spec. requirements.
The test report must include all the tests required by the relevant standards and all the results. Only a laboratory, authorized according to the International Standard ISO/IEC Guide 17025 shall perform the tests.
- 3.4. Description of the locking system in the enclosures.
- 3.5. Mounting instructions.
- 3.6. Technical data of all the materials.
- 3.7. 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.).
- 3.8. Description of materials and technology for manufacture of the required enclosures and M.A or "SIMILAR" enclosures and M.A.
- 3.9. Quality Assurance Manual including Quality Procedures.
- 3.10. One (1) sample of each of the proposed / similar item.
The sample shall be from the manufacture production line or from the know-how supplier in the case of know how agreement. information of how to supply and how to receive back the sample (for not winning suppliers) - see the bid documents.
- 3.11. Appendix F: know how agreement, duly signed by the know how recipient and the know how supplier. For the Know-how agreement condition see Appendix F
- 3.12. Appendix B: Completed and filled in summary of data, signed by both the bidder and manufacturer.
- 3.13. Appendix A: schedule for delivery approval, signed by both the bidder and know how supplier.
- 3.14. Appendix "C" – Statement of obligation – conform to specification requirements signed by both the bidder and the manufacturer.
- 3.15. Appendix "E" – filled in and signed Statement of manufacturing experience.

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3.16. Appendix "D" – Statement of obligation – same product, signed by both the bidder and the manufacturer.

3.17. Spare parts list for each proposed item.

3.18. a detailed list:

- All items that the bidder proposes to supply.
- For each item the bidder shall provide the following data:
item description, IEC cat. No., Manufacturer P/N.

REMARKS:

- ❖ **Bidder which will not submit all the above may be disqualified.**
- ❖ **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 an organized file/hard (no need for a hard copy in case of the electronic submission) copy. The files need to be organized in 4 folders:**
 - 1) Documents of the proposal.**
 - 2) Summary of data.**
 - 3) Test reports.**
 - 4) Technical documents for each proposed item**
- ❖ **Similar means the same enclosures with another dimensions manufactured from the same material and in the same technology.**

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4. MANUFACTURING STANDARDS

Unless otherwise stated, the item shall be designed, manufactured and tested in accordance with the requirements of the latest published recommendation of the following standards:

VDE 606	Connecting material up to 660 V
VDE 609	Terminal points for screw terminals for connecting or joining copper conductors up to 240mm ²
IEC 62208	Empty enclosures for low-voltage switchgear and controlgear assemblies
ISO 306	Plastics - Thermoplastic materials - Determination of Vicat softening temperature (VST)
DIN EN 60243	Electrical strength of insulating materials
DIN EN ISO 4892-2	Plastics - Methods of exposure to laboratory light sources
IEC 60529	Classification of degrees of protection provided by enclosures
DIN EN ISO 179	Plastics – Determination of Charpy impact strength
ISO 527	Plastics - Determination of tensile properties
VDE 0100	Erection of power installation's with rated voltage up to 1000 V
DIN 40014	Graphical symbols on electrical equipment
ISO 7000/ IEC 60417	Graphical symbols for use on equipment.
IEC 61140	Protection against electric shock
VDE 603	Metering panels and accessories
VDE 220	Low voltage connectors
VDE 636	Low voltage fuses
VDE 660	Low voltage switchgear and controlgear
VDE 611	Terminal blocks for connecting copper conductors up to 1000V AC and 1200 V DC
DIN 40011	Earth protective conductor, low external voltage earth, markings on electrical equipment, rating plates
DIN 43620	Low voltage H.R.C fuses

REMARKS:

- ❖ Standards referred to this Specification and in Supplements to this Specification are an integral part of this specification unless otherwise provided. All such Standards referred to the most current issue, including all amendments, supplements etc., as of the date of the Contract, unless otherwise indicated.
- ❖ The items, including all appurtenances and accessories, shall be fabricated, inspected, tested and preserved in compliance with the Standards as, specified herein, unless otherwise indicated.

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In the event that no reference to Standard is made herein, all components and parts shall be fabricated, inspected, tested and preserved, so as to insure their fitness for use and for purpose they are designed.

- ❖ Bidder may propose Standards as alternative for or additions to those specified herein. A copy of each proposed Standard, if any, shall be included with the proposal. The Israel Electric Corp. reserves the right to accept or to reject the proposed alternative Standards.
- ❖ If the present Specification contains requirements which differ from those of the a.m. Standards, the requirements of this Specification shall take precedence.

5. TECHNICAL REQUIREMENTS

5.1. Service Conditions

The service conditions shall be in general according to clause 6 of IEC Publication 61439-1 with the following additions and changes:

- 5.1.1. Severe atmospheric and industrial air pollution, coal dust, sea salt.
- 5.1.2. Long dry period without any rainfall.
- 5.1.3. Long summer periods with O.T.Cs of sunshine (1120 W/sqm) according to IEC Publication 60721-3-4/95.
- 5.1.4. High atmospheric humidity as experienced in coastal or desert areas.
- 5.1.5. Direct and continuous brilliant solar radiation for long periods.
- 5.1.6. Annual variation in air temperature: -10°C to +55°C
- 5.1.7. Annual mean air temperature: +25°C
- 5.1.8. Maximum relative humidity : 90%
- 5.1.9. Average relative humidity: 70%
- 5.1.10. Average ambient temperature measured over a period of 24 hours does not exceed: +35°C
- 5.1.11. Maximum difference of ambient temperature from day to night: +25°C

5.2. Enclosures Dimensions

General Dimensions:

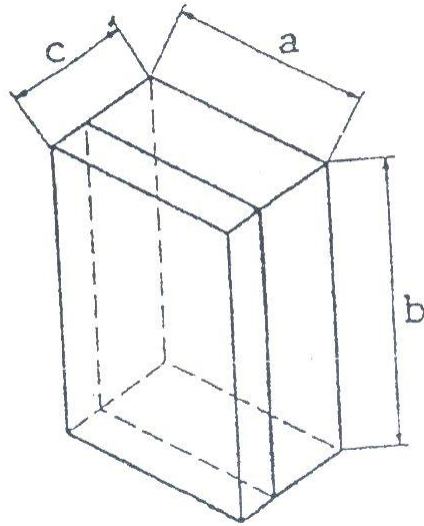
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Item Symbol	External dimensions mm		Internal depth mm		Remarks
	a) width	b) length	Low cover enclosure	High cover Enclosure	
S (small)	(x) 175	(y) 250	125 ÷ 150	175 ÷ 200	SB Also small for branching
M/MC (medium) (medium for cables)	(y) 250	(2x) 350	125 ÷ 150	175 ÷ 200	MB Also medium for branching
L/LC (large) (large for cables)	(2x) 350	(2y) 500	125 ÷ 150	175 ÷ 200	LB Also large for branching

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2M (two medium)	(2x) 350	(2y) 500	125 ÷ 150	175 ÷ 200	
3M (three medium)	(2x) 350	(3y) 750	125 ÷ 150	175 ÷ 200	

5.3. Type of Enclosures

- 5.3.1. According to their use, few types are defined
- 5.3.2. Empty insulated enclosures for mounting electrical equipment:
Types: S, M, L with low cover
S, M, L with high cover
Total: 6 types
- 5.3.3. Insulated enclosures for cable entrances:
Types: MC and LC
These are M and L type enclosures, with side panels having special arrangement for fitting cable entrances – see technical details
- 5.3.4. Insulated enclosures for branching off:
These enclosures shall be supplied with branching off clamps with side panels prepared for single core cable as detailed technically hereunder.
- 5.3.5. Assemblies of enclosures of the same type:
Types: 2M & 3M
These enclosures are supplied interconnected by bridging to enable mounting of equipment inside in a way allowing for easy opening.

5.4. Enclosures' Materials

Material of the enclosures, base, cover and side covers, will be insulated thermoplastic material which will conform to the following main technical requirements:

- 5.4.1. Self- extinguishing and non-dripping (V-2) per standard UL-94.
- 5.4.2. Melting temperature – not less than 120⁰ C. Testing will be done per ISO 75 HDT at 1.8 Mpa.
- 5.4.3. Dielectric strength – not less than 20 KV/mm² : testing will be done per IEC 60243-1, (in dry condition as after submersion of 24 hours in water).
- 5.4.4. Water absorption – not more than 10 mg. Testing will be done per ISO 62 for 4 days.
- 5.4.5. U.V. – protection – to be U.V. protected for at least 10 years. Testing will be done per ASTM-G154 by QUV – Q-PANEL.
- 5.4.6. The enclosure (base & cover) will withstand a HAMMER TEST of minimum of 15 kg/m² Testing will be done per ISO 179-1eU Charpy, with the sample having a crack.
- 5.4.7. Flexural modules – greater than 2200 MPa according to ISO 527.

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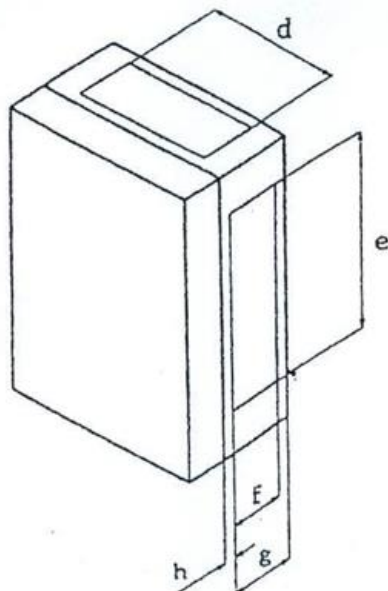
- 5.4.8. Flammability – classification min. V-2, according to UL94.
- 5.4.9. Volume resistivity: Greater than 10^{15} ohm x m, acc. to IEC 62631-3-1&2.
- 5.4.10. Resistance between metallic inserts (dry and after 24 hrs. in water): greater than 10 Mohm acc. to IEC 62631-3-1&2.

5.5. Technical Requirements for all Types of Enclosures

- 5.5.1. The enclosures of all types including those with side covers will be insulated at a minimum IP 55 per standard I.E.C. 60529.
- 5.5.2. All enclosures will be of double insulation type, and according to standard VDE 100, chapter 7.
- 5.5.3. All metal parts of the enclosures will be plated by passivated galvanized chrome with a non-shining finish. Minimal thickness of the plating must be not less than 20 microns. Plating will be according to ISO 4042 or any equal international standard. Another type or plating can be only by technical approval by the IEC.

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5.5.4. Side openings:



- ✓ The required openings will be of the knock out type, (opened by breakage without harming the rest of the enclosure).
Openings will be closed unless otherwise demanded.
- ✓ The length of the opening will be the maximal allowed by the length of the side.
- ✓ The height of the opening will be $f=45-60$ mm.
- ✓ The height of the upper side of the opening from the external end of the enclosure's base will be $g=75$ mm maximum. (This is including the thickness of the reinforcement lugs).
- ✓ The height of the side above the opening will be $h=20$ mm minimum.
- ✓ Additional detailed explanations regarding enclosures for cables and for branching off-see in their specification chapters.
- ✓ The openings must be identical to the openings in the enclosures now in use by the I.E.C.
- ✓ Opening for cables must be also in the back of the enclosures.

5.6. Enclosures closing and stamping arrangements

- 5.6.1. Locking of cover to enclosures' base will be by a screw and by using a tool.
In each cover in 2 diagonal joints there shall be an arrangement for stamping by means of stamping used now by the I.E.C.
- 5.6.2. The enclosure's cover will be equipped with a seal – for protecting against water or dust penetration as per specification requirements. The seal will be of long lasting material, will keep the proper protection properties and will

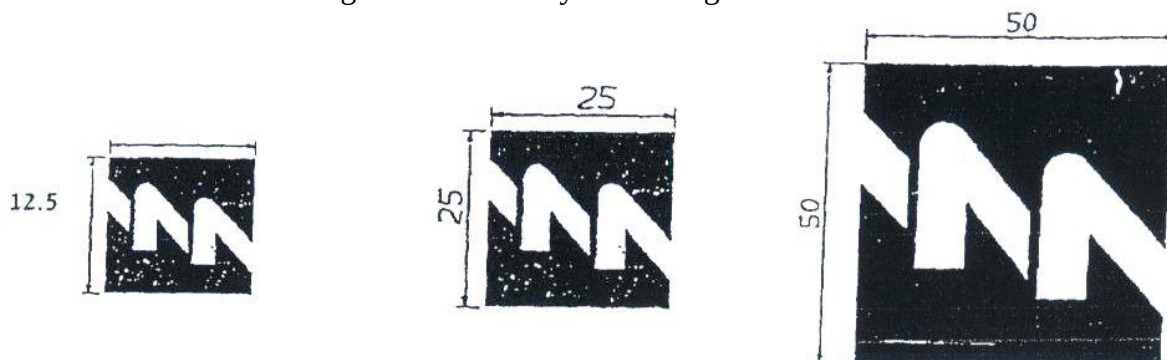
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not stick itself to the enclosure's base as long as the cover is mounted on the base.

- 5.6.3.** The components used for closing the cover to the base, must be not inside the active (inside) space of the enclosure; i.e. , the closing must be done outside the enclosure's space, in which the electric equipment is installed and mounted.
- 5.6.4.** The locking of the cover must be using special screws ("screws"). The screw shall be designed that the take out of the screw shall be possible with a tool on only. The screws shall permit operation for minimum 1000 opening/closing of the cover.

5.7. Colors and markings

- 5.7.1.** The enclosure's base will be black, while all covers will be of transparent plastic material. All side panels' covers will conform to the specification's requirements.
- 5.7.2.** The following markings will appear on the cover:
- Double insulation mark per DIN 40014.
 - IP level per I.E.C. 60529.
 - On the cover and on the base of the enclosure the I.E.C. mark has to appear.
 - All the markings will be done by embossing.



- 5.7.3.** I.E.C. mark will be according to the following drawings when the areas in with will be embossed. The supplier will adjust the size of the marking according to the dimension of the various parts, which to carry this mark.
- 5.7.4.** The supplier shall emboss his mark on the base of enclosure/MA.
- 5.7.5.** Inside each enclosure, a quality control singed label will be glued, approving conformity of the enclosure to the specification requirements.

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5.8. Mounting the enclosures on walls

5.8.1. The mounting of the enclosure on the wall will be done by lugs. Connecting the lugs to the enclosure will be done on the enclosures outside, to eliminate interference with its IP and insulation.

5.8.2. Connecting the enclosure with the lugs to the wall will be done by screws with holes in the protruding part of the lugs outside the enclosure's frame.

5.8.3. The bidder must offer mounting lugs to suit all offered enclosures. Bidder must offer double lug, suitable for mounting of a pair of joint enclosures. The lugs will be supplied in sets:

- A set of 4 lugs for mounting of single enclosure.
- A set of double lugs.

Each set has to include, also, the screws needed for connecting the lugs to the enclosure.

5.9. Mounting the old M.A in the enclosures

The supplier shall supply in every enclosure all the items and accessories necessary to mount the old M.A used by IEC in his enclosures.

5.10. Specific Requirements for Enclosures for Cable Entrance

5.10.1. These enclosures are intended for acceptance of up to 240 mm² NYFGbY cables.

5.10.2. The enclosures will be of the types M or L, when on the small side of the L type (350 mm) or the long side of the M type (350 mm) instead of having openings as specified in paragraph 5.3.4, there will be 3 openings for mounting of cable entry. On the other sides the openings will be as specified in paragraph 5.3.4.

5.10.3. The cable entry will be mounted inside the enclosure after the knockout openings will be opened. The mounting of the cable entry will not affect any of the specification's requirements for impermeability and double insulation. The cable entry will be mounted inside the enclosure. The knockout openings must allow mounting of cable entries in 3 places along the side of the enclosure (right, middle and left openings).

5.10.4. The cable entry will have to allow for entering of cables from 4x10 mm² and up to 4x240 mm². The cable entry will be U.V. protected, suitable for outside use and of hardness SH and it will be made of ELASTIC NEOPRENE only.

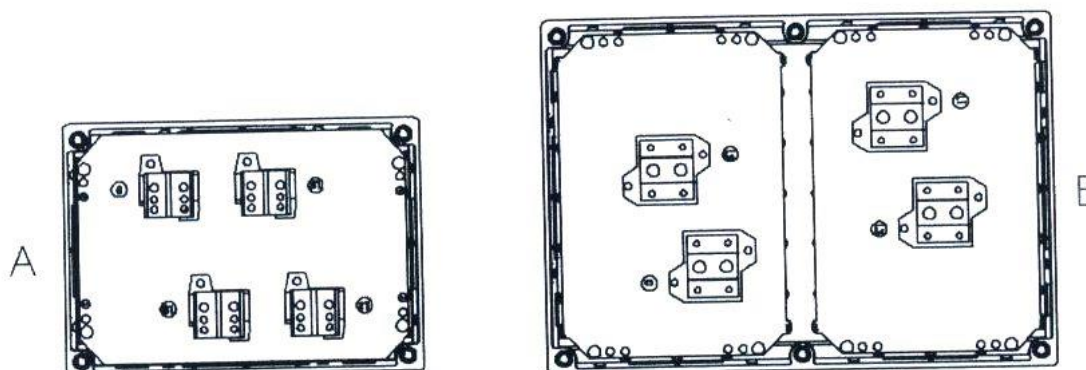
5.11. Special Technical Requirements for Branching off Enclosures

5.11.1. The enclosures for branching off will be equipped with clamps, intermediate protection covers and side covers suitable for cable entries.

5.11.2. For specific requirements regarding the clamps, side covers and intermediate covers, refer to the chapter dealing with M.A. in this specification.

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5.11.3. Mounting of the clamps:



A- M type enclosure with:

- 4 branching off clamps 4x95mm² (as defined in 5.19.1).
- The branching off clamp intended for the Neutral terminal shall be suitable for {2x70 + (4x35)} mm² for Cu and {2x95 + (4x35)} mm² for Al.

B- L type enclosure with 4 branches off clamp {1x150 + (2x35)} mm² for Cu and {1x240 + (2x35)} mm² for Al

5.11.4. Side covers will be comb type and will enable passage of 4 cables single core. For the cable type enclosure, the holes intended for the passage of single core cables with the sizes specified in clause 5.10 in this specification

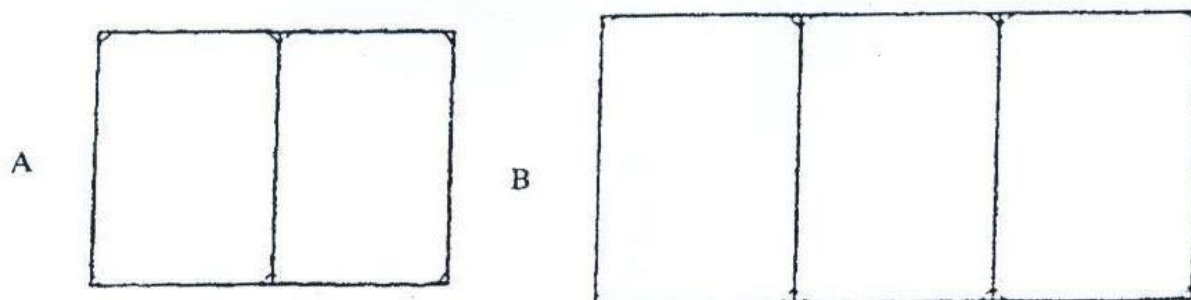
5.11.5. The material for the side covers will conform to the specification requirements in par. 5.4.

5.12. Specific Technical Requirements for Assembly of Enclosures of the same type

5.12.1. The requirements refer to type enclosures interconnected, per specific request.

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5.12.2. The arrangement of the assembled enclosures will be as detailed in following drawing:



A – 2M Enclosure

B – 3M Enclosure

5.12.3. The enclosure's assemblies will be made of 2M or 3M type enclosures when the upper common part of the enclosure's base (part H in the drawing in clause 5.5.4) will be made as a dismountable bridge and the covers of the enclosures will be 2 or 3 M-type covers.

5.12.4.

- Connections between the enclosures will be made by seals to ensure the specification's requirements for impermeability and double insulation. The seals will be made of long lasting material.
- The seals and accessories for the enclosures interconnecting shall be supplied separately also, and will be called "ENCLOSURE CONNECTION SET".

5.12.5. The set will be designed to enable the most simple and easy connection "ON SITE" (in case of need).

5.12.6. The side openings between the enclosures will be knocked out to the maximum, enabling easy passage of wires or cables. The bridge, on which the covers are set, will be designed for simple and easy mounting and dismantling.

5.12.7. The bridge and all plastic accessories will be made of material conforming to the requirement of this specification.

5.13. **Technical Requirements for the Side Covers**

5.13.1. The side covers will be used for closing of opened side openings.

5.13.2. The mounted side cover will not interfere with the maintaining of the specifications requirements for impermeability and double insulation.

5.13.3. Each side cover will be equipped with a rubber seal, made of long lasting material which will maintain its impermeability and will not stick.

5.13.4. The side covers will be supplied separately, with their accessories and will be called "SIDE COVER SET".

5.13.5. Bidder must design and offer such a set for each type and size of side opening, in the offered enclosures. The side covers will have no openings

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and knockout openings, and will be made of materials conforming to the specification requirements.

5.13.6. The mounting of the side cover will be with tools only.

5.13.7. The minimum thickness of the enclosure cover shall be 3mm.

5.14. Warnings inscriptions

The logo of the Israel Electric Corp. (clause 5.7) and the warning sign (clause 5.16.9) shall be according to the attached sketch.

5.15. Types of M.A

5.15.1. The M.A. will be mounted inside insulated enclosures

5.15.2. The M.A must fit and enable its mounting inside enclosures now in use by the I.E.C., without any need for adjustment and/or changes and/or the use of special accessories for this purpose.

5.15.3. According to the equipment included in it, there are several types of M.A.:

- M.A. having fuse bases of the "DO-2" ("Neozed") type.
- M.A. having fuse bases of the "00" (100A) type.
- M.A. having fuse bases of the "2" (400 A) type.
- M.A having branch-off clamps.
- M.A having metering boards.

5.16. Technical Requirements – General (for all types of M.A.)

5.16.1. The M.A. is made of the following parts:

- Mounting base for installation of the electrical equipment.
- The electrical equipment including all its accessories.
- Protecting covers against unintentional contact with the live components parts.
- Accessories for installing the M.A. and enclosure cover.

5.16.2. Installation and mounting of the electrical equipment must ensure the safety minimal distances between the various components.

5.16.3. The offered mounting system of the electrical equipment must ensure easy installation, and quick, simple and easy conduits connection.

5.16.4. All screws and washers installed must be plated against corrosion with GALVNIC ZINC having chrome passivation, with minimum thickness of 5 microns.

5.16.5. The screws will be made of steel, with millimeter threading. Screws will conform to DIN EN ISO 1207 and DIN EN ISO 1580, and the washers conforming to DIN EN ISO 7089 and DIN 433.

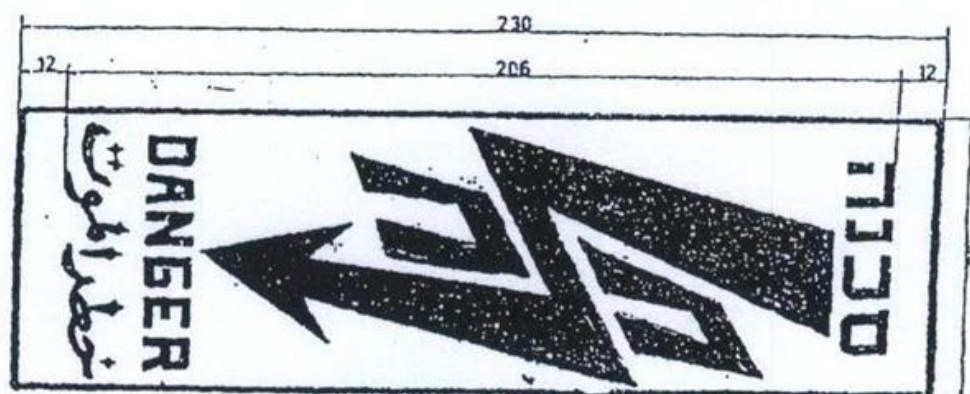
5.16.6. All other metal parts will be plated with GALVNIC ZINC having chrome passivation, with 20 microns minimal thickness.

5.16.7. All plastic parts of the M.A. will be made of materials conforming to all the requirements of this specification. In addition, the plastic material of the M.A. parts must endure steady temperature of 130 C minimum,

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without having any change in its chemical or physical properties of its material.

- 5.16.8.** Fuses: the slots shall be made of a minimum 80 % of the cover's thickness, to enable making openings- with a knife- to be used for the fuse caps which may be installed later "on site".
- 5.16.9.** Each protecting cover intended for M.A. with branch-off clamps and for M.A. with 400 A, must be specially colored or a label and glued with a warning as per the following drawing:



5.16.10. Base Plate

The base plate shall be made from plastic material ac. to this specification: Plastic materials for the enclosures, except: 3*400A and another MA with the permission of IEC shall be made from galvanized/plated steel according to the agreement between the bidder and IEC.

5.16.11. Protecting Cover

- The protection cover will be made of plastic material conforming to the specification requirements, and will be 2mm thick at least.
- Putting on and taking off the protection cover inside the insulated enclosure will be done without any need to take off the neozed/threaded type fuse caps.
- In each protecting cover there will be plastic holding buttons for putting it on the enclosure and taking it off the enclosure.
- In each protecting cover for M.A. with holes must be drilled of 7mm diameter above the neutral conduit for enabling testing the voltage of the neutral.

5.16.12. Legend for M.A. Components

Hereunder are the legends for the letters marking the various M.A. components in the following paragraphs:

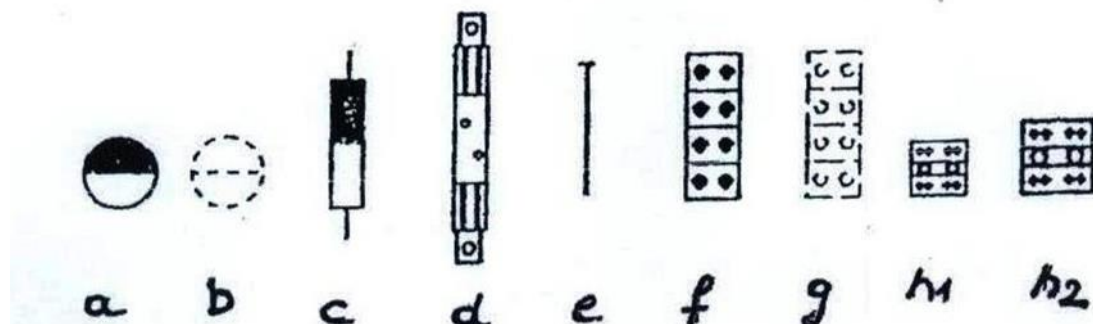
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- a) Neozed type fuse base size DO-2 up to 63 A.
- b) Space for later installation of neozed base.
- c) H.R.C. fuse base, size "00" up to 100 A.
- d) H.R.C fuse base, size "2" up to 400 A.
- e) Neutral Busbar
- f) Branch off clamp $4 \times (35+2 \times 15) \text{ mm}^2$.
- g) Space for later installation of branch-off clamp $4 \times (35+2 \times 16) \text{ mm}^2$.
- h) Branch-off clamp $(70+2 \times 35) \text{ mm}^2$ and $(150+2 \times 35) \text{ mm}^2$ for copper and $(95+2 \times 35) \text{ mm}^2$ and $(240+2 \times 35) \text{ mm}^2$ for aluminum

5.17. M.A. with Neozed Fuse Bases – Technical Requirements

5.17.1. Types of M.A. for neozed fuse basis 63 A

- M.A. with 3x63 A fuse bases to be installed in S-type (small) insulated enclosure (with possibility to add another 63 A fuse base), hereafter 3x63 A for S enclosure.
- M.A. with 3x63 A fuse bases to be installed in M-type (medium) enclosure (with possibility to add another 6 fuse bases 63 A), hereafter 3x63A for M enclosure.
- M.A with 6x63 A fuse bases to be installed in M-type enclosure (with possibility to add another 3 fuse bases 63 A), hereafter 6x63 A for M enclosure.
- M.A. with 9x63A fuse bases to be installed in M-type enclosure (with no possibility to add another fuse base), hereafter 9x63 A for M enclosure.

5.17.2. All the M.A. will be supplied with the protection cover and the accessories for installing the M.A. and the enclosure's cover.

5.17.3. Fuse bases will conform to standard VDE 636.

- The conduits connections will be only through quick connection type clamps suitable for wires from 6 up to 35 mm^2 cross section. (Cu/Al).
- The bases will be mounted on DIN rail 35mm width from plastic/steel-plated acc. to the IEC agreement.

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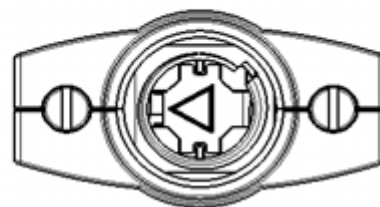
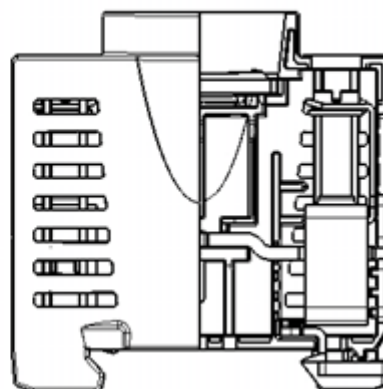
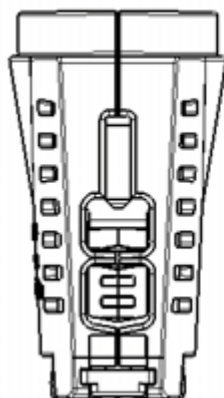
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- The mounting of the bases into the rail will eliminate any possibility to move the bases sideways, and their fixing to the rail will eliminate the base from getting out of the rail when the wires are connected.
- The fuse will be made of plastic material, self-extinguishing of the best mechanical and thermal properties and conforming to standard VDE 636.
- The fuse base will be supplied with the fuse cap already screwed into the base. The fuse cap shall be made from a plastic material only, acc.to VDE 636.
- The fuse base will have a protection cover covering the contacts area. The material of this cover will conform to all requirements of the specification.
- The cover can be an integral part of the fuse base.
- For data on configuration of the fuse base and protection cover, see the following drawing:



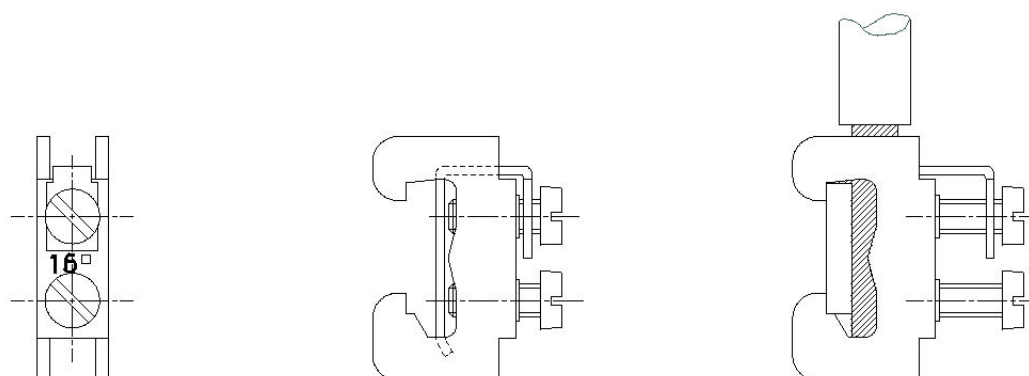
5.17.4. Neutral Busbars and Terminals

- Neutral busbars will be of copper, E-CU F25/30, according to standard DIN EN 13601.
- The Busbars will be GALVANIC NICKEL plated, having none shining finish and at least 12 microns thick, per standard DIN 50960 for plating type gal Nil2mt.
- Each neutral busbar will have terminals for conduits connection.

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- IF is needed, the mechanical strength of the threading made in the busbars will be larger than the mechanical strength of the screws – the supplier shall done a special test with a torque of min 8 Nm.
- The number of terminals in each busbar will be as hereunder:
Only per specific order space for the second busbar will be set in every M.A.
- The terminals will fit the type of busbars in use today by I.E.C
- The terminals will be made in such a way, to enable removing it after releasing the screws, without removing the busbar itself.
- When the screws are tightened the terminal is not to be removable from the busbar.
- All the terminals for 16 mm² will have 2 tightening screws each- for 35 mm² is possible one or two screw/s.
- All the terminals intended for mounting on busbars will conform and tested to standard VDE 220. In addition to the a/m standard the clamp shall be tested with a torque of minimum 6 Nm – after the test shall be no any damage to the terminal body or to the screws.

Hereunder a principal drawing of a 16mm² terminal:



5.17.5. Busbars Connecting Fuses Bases

- In M.A. 6x63 A and 9x63 A bases intended for the same phase will be connected by busbars.
- For specifications and requirements for the material and plating, see paragraph 5.17.4.
- The busbar will be suitable for mounting on the fuse bases offered by bidder and the connection of the busbars will not need any removing of parts and or adjustments.
- Connection of incoming conduits will be by clamps 10 : 35 mm² sm/rm. (Al/Cu) mounted on each busbar.

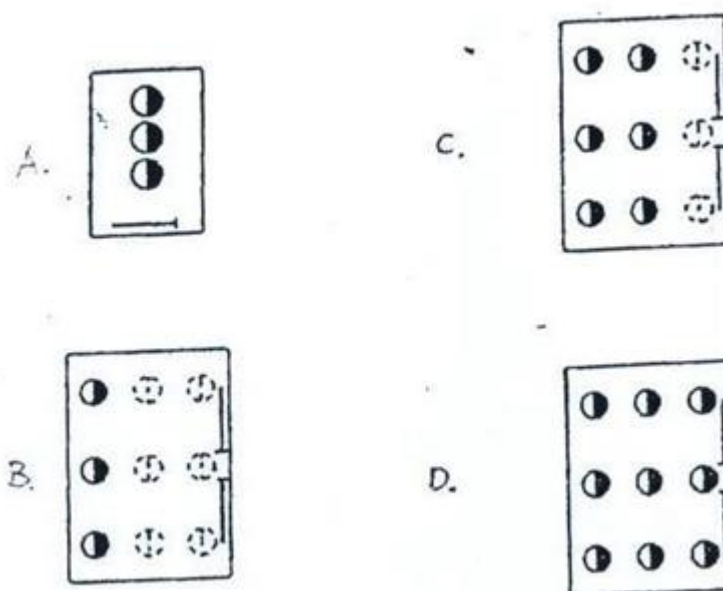
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- The cross section of all strips, including busbars, will suit the maximum currents which may appear in the circuits that are protected by the arrangement of the largest number of fuse bases.

5.17.6. Protecting Covers

Protecting covers will conform to all requirements of this specification referring protecting covers (clause 5.16.11)

5.17.7. Principle Drawings of the Various M.A.s



- A- 3x63 A M.A. for S enclosure
 B- 3x63 A M.A. for M enclosure
 C- 6x63 A M.A. for M enclosure
 D- 9x63 A M.A. for M enclosure

5.18. M.A with H.R.C Fuse Bases – Technical Requirements

5.18.1. Types of M.A. – There 3 Types of M.A. with H.R.C. Fuse Bases

- M.A. with 3 fuse bases size "00" up to 100 A, and neutral terminal for installing in M enclosure- hereafter 3x100 A M.A.
- M.A. with 3 fuse bases size "2" up to 400 A ,and neutral terminal for installing in L enclosure, but for use only with fuses up to 160 A – hereafter 3x400/160 A M.A.
- M.A. with 3 fuse bases size "2" up to 400 A, and neutral terminal for installing in L and MC enclosures (when the busbars of the fuse bases are long and are reaching the MC enclosure) for use with fuses up to 315 A- hereafter 3x400/315 A.M.A.

5.18.2. Fuse Bases – Technical Requirements

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- Fuse bases will conform to standard VDE 636/IEC 60269.
- Partitions will be mounted between the bases. The partitions will be self-extinguishing, and will withstand the contacts' temperature.
- The partitions must be higher than the height of the fuses installed in the fuse bases.
- If the fuse bases are supplied with covers on the jaws is not any need to supply partitions.
- In the M.A. with fuses a neutral busbar will be installed on the mounting base. In each such busbars a possibility must exist for the connection of 3 conduits (neutral incoming, neutral outgoing and neutralization).
- The neutral busbar will have a cross section suitable for the working currents of the M.A.
- Requirements for the material of the terminal and plating – see those in the chapter dealing with busbars.
- In the neutral busbar the connection of the conduits will be by screws: M8 for 100A M.A., and M 12 for 400 A M.A.
- The busbar will be supplied with the screws, the washers and the spring washers needed for its connection and fixing.
- The technical requirements for the busbars connection the fuse bases in the 3x400/315 A M.A. to the section in the second enclosure intended for cables, are identical to those specified in the chapter dealing with the M.A. with neozed type fuses, including the material and plating, when the cross section of the busbars must be suitable for the working current of the M.A.
- All the fuse bases equipped with HRC fuses shall permit the install/replacement of the with a fuse handle.
- The fuse bases will be supplied with the screws, the washers and the spring washers needed for connecting the cables – M8 for size '00' and M12 for size '2'.
- The covers will be of plastic material, conforming to the specification requirement.
- All fuse bases (of the sizes "00" and "2") will be of the type in the following principal drawing.
- The IEC have the right to order the fuse bases equipped with clamps (10-95 mm² Al/Cu size "00", 50:240 mm² Al/Cu for size "2").

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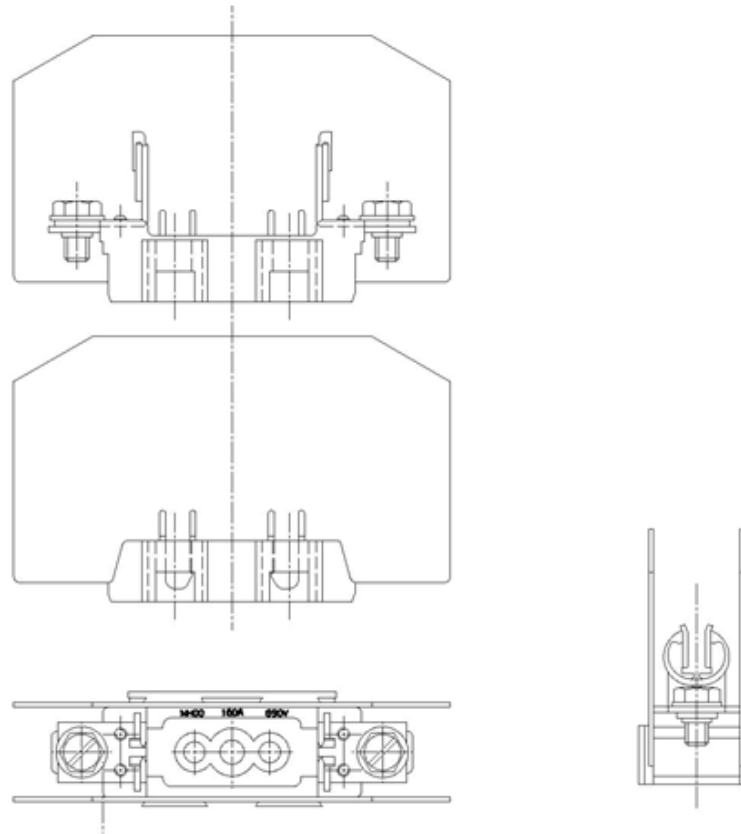
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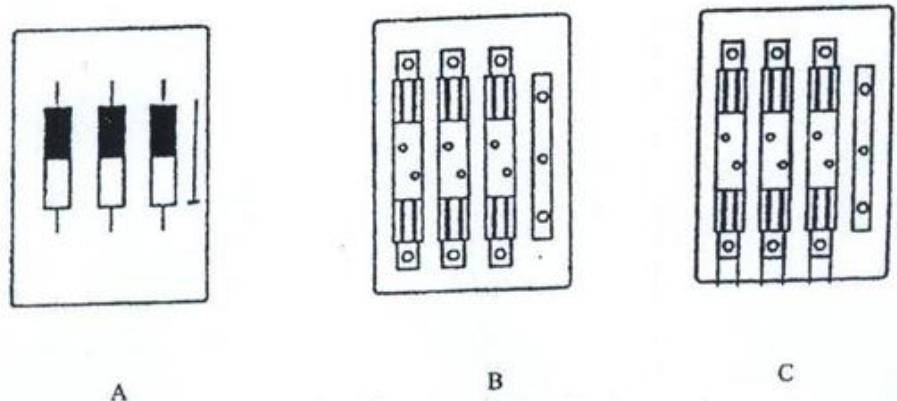
5.18.3. Principle Drawings of the HRC fuse base



5.18.4. Protecting Covers

- With the M.A. protecting covers will be supplied according to the requirements in this specification.
- For M.A. 3x400/160 A and 3x400/315 A, attention must be paid that a warning sign is required, as detailed in the chapter dealing with the protecting covers.

5.18.5. Principal Drawings of Types of M.A. with H.R.C. Fuse



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- A- M.A. 3x100A
- B- M.A. 3x400/160 A
- C- M.A. 3x400/315 A

5.19. M.A. for Branching off Clamps – Technical Requirements

5.19.1. Types of M.A

- Two types of the M.A.:
 1. $\{2 \times 70 + (2 \times 35)\} \text{ mm}^2$ for Cu and $\{2 \times 95 + (2 \times 35)\} \text{ mm}^2$ for Al. - hereafter 4x95mm².
 Only the clamp intended for Neutral terminal shall be suitable for connection of $\{2 \times 70 + (4 \times 35)\} \text{ mm}^2$ for Cu and $\{2 \times 95 + (4 \times 35)\} \text{ mm}^2$ for Al.
 2. $\{1 \times 150 + (2 \times 35)\} \text{ mm}^2$ for Cu and $\{1 \times 240 + (2 \times 35)\} \text{ mm}^2$ for Al. - hereafter 4x240mm²,
 The two types of M.A will be supplied with their enclosures, see chapter in the specification dealing with these enclosures. All the size of cable capacity is sm and rm suitable.
- Two other types of M.A. :
 1. 4x35+4(2x16) mm² Al/Cu, sm/rm hereafter 4x35mm².
 2. $\{2 \times 70 + (2 \times 35)\} \text{ mm}^2$ for Cu and $\{2 \times 95 + (2 \times 35)\} \text{ mm}^2$ for Al.
 Only the clamp intended for Neutral terminal needs to be suitable for connection of $\{2 \times 70 + (4 \times 35)\} \text{ mm}^2$ for Cu and $\{2 \times 95 + (4 \times 35)\} \text{ mm}^2$ for Al.
 hereafter "4X95 mm²" This M.A for metering pillaring pillars shall be supplied as separate M.A.

5.19.2. Technical Requirements for Branching Off Clamp

- All clamps will conform to VDE standard.
- Their binding standards are: VDE 220, VDE 606, IEC 61238 and VDE 609.
- Clamp's base material will be plastic, having mechanical and thermal properties conforming to the standards requirements.
- All clamps will have connection bars (strip) for pressing and fixing of the main conduits.
- The clamp 4x35mm² will be of the type suitable for mounting on a 35mm DIN rail.
- All other clamps will fix to the base by screws.

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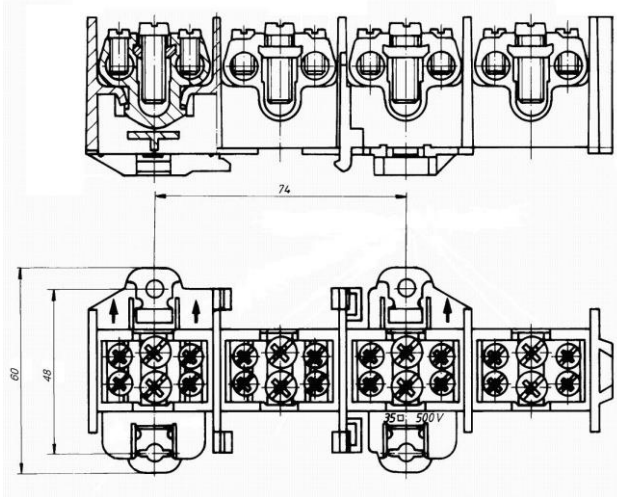
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5.19.3. Technical Requirements for Branching Off Clamp
4 x 35 mm² Clamp:



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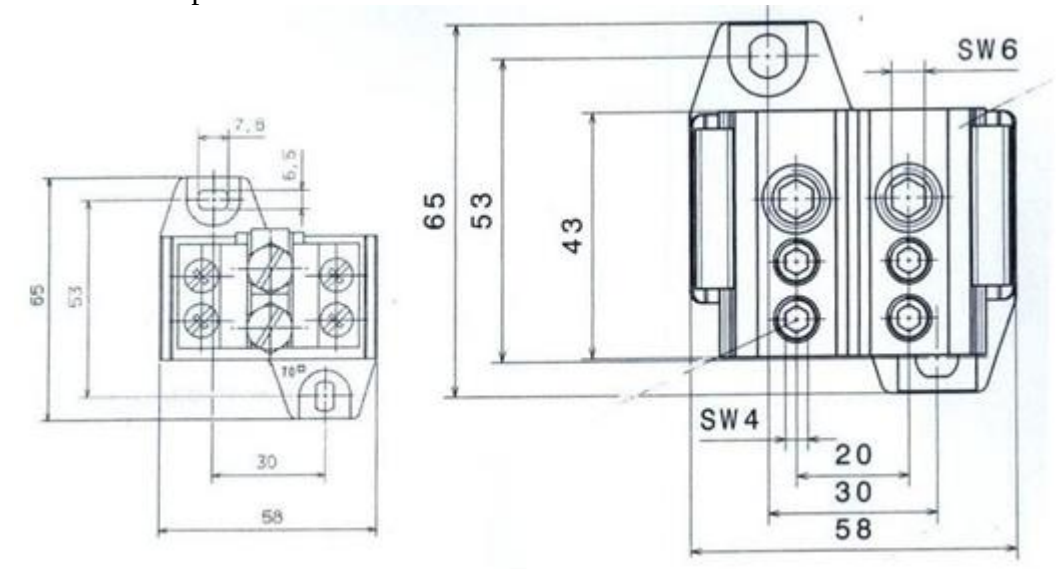
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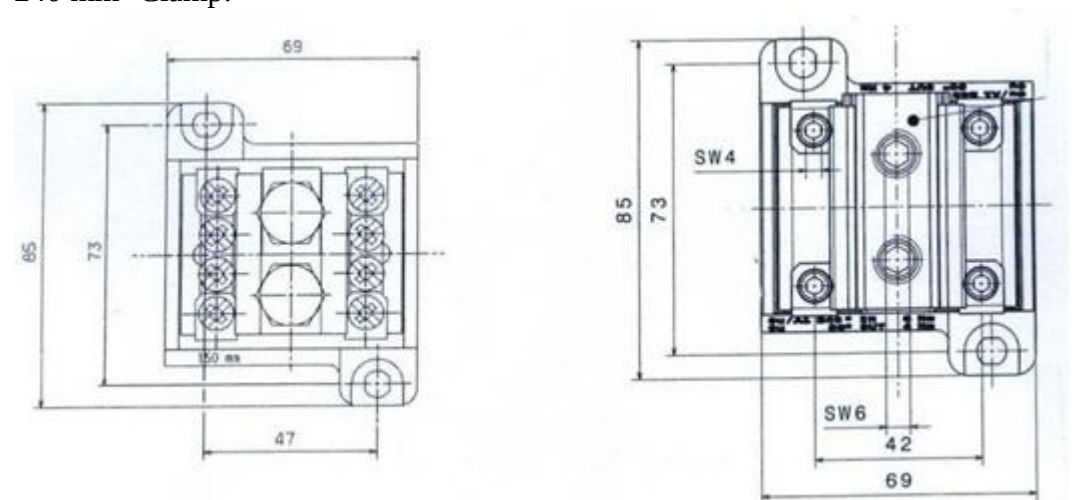
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95 mm² Clamp:

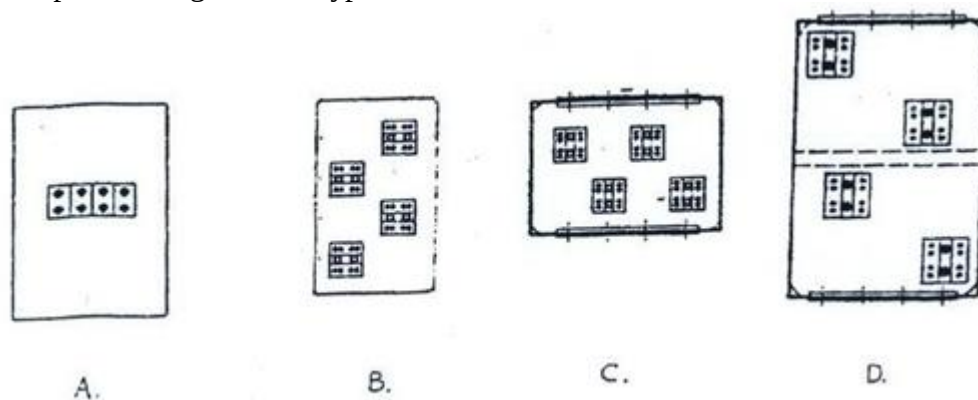


240 mm² Clamp:



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5.19.4. Principal drawings of MA types:



- A- 4x35 mm² M.A.
B- 4x95 mm² M.A.
C- Enclosure M Type with M.A. 4X95 mm²
D- Enclosure L Type with M.A. 4X 240 mm²

5.20. Base for metering

- 5.20.1.** The base for the meter is to be installed in a M-type enclosure to enable mounting of single phase and three phase meters inside such enclosure.
- 5.20.2.** The base will be made of a plastic material that enables using of patent /plastic type screws. The material will conform to all the requirements of this specification for plastic materials. (clause 5.4)
- 5.20.3.** The base will be supplied together with the screws needed for mounting the meter.
- 5.20.4.** I.E.C reserve the right to change the requirements for the types of screws supplied with the base. Detailed information will be submitted to the bidder by I.E.C. in such case, and the bidder will have to make these changes within one month of the date receipt of the information.
I.E.C. will submit to the successful bidder the new update requirements regarding the base and the needed accessories.

5.20.5. Types of bases and accessories

- base for central metering cabinets:
 - ❖ For the place 1 shall be included screws M5X12 acc. to DIN 84 B , Zn. Plated 5 microns with chrome passivation.
 - ❖ For the place 2 shall be glued a nylon bag with the following screws and washers made from inox steel:
 - 4 screws 4*16 mm plat head inox 18-8
 - 2 screws 4*30 mm plat head inox 18-8
 - 4 washers 4.3X9X0.8 acc. to DIN 125 A2 – inox

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- base for 0 and designed metering cabinets:
 - ❖ For the place 1 shall be included screws 5X16 for plastic, made of inox type 304
 - ❖ for the place 2 shall be glued a nylon bag with the following screws and washers made from inox steel:
 - 4 screws 4*16 mm plat head inox 18-8
 - 2 screws 4*30 mm plat head inox 18-8
 - 4 washers 4.3X9X0.8 acc. to DIN 125 A2 – inox

The bidder shall receive the IEC accord, before the beginning of manufacturing about:

- Sizes , shape , type of head – for the screws
- Material characteristics
- Labeling
- Packaging

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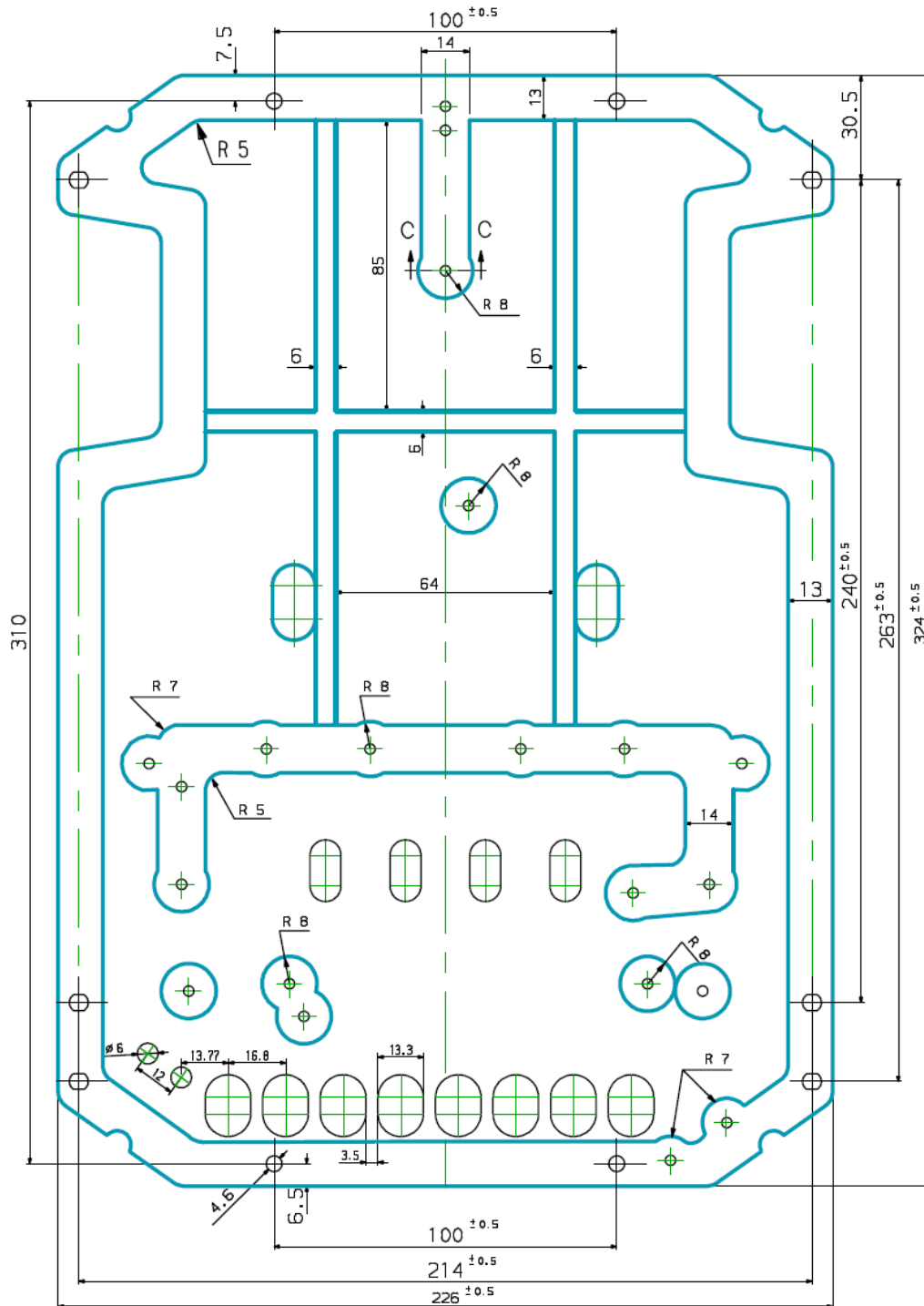
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Principle Drawings of the Base :



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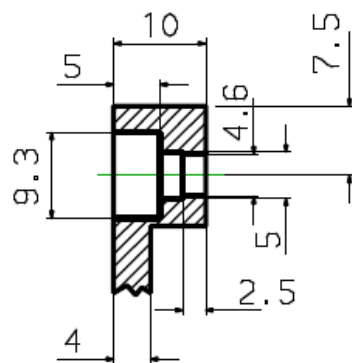
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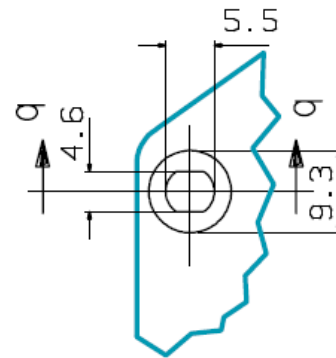
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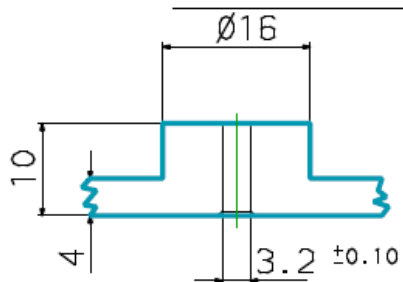
section a-a



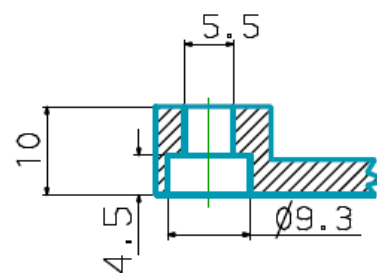
detail b



section c-c



section b-b



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6. TYPE TESTS

The Type tests shall be performed for all the items according to the standards stated in this specification and according to the specification conditions.

A set of the type test reports shall be attached to Bidders technical proposal.

6.1. Degree of protection

Each type (size) of the enclosure shall be type tested according to IEC standard 60529 for IP55.

6.2. Weather aging test

6.2.1. The weather aging test shall be performed according to ASTM G154 standard (Q-PANEL) LAMP UVB-313 as follows:

- 8h UV/50°C; 4h CON/40°C
- Duration of the test: **at least 250 hours**

Recommended sample size: 75mm x 150 mm

Minimum number of samples, which will be tested: 5 (five)

Or:

According to the agreement between the bidder's alternative test procedures – like xenon lamp etc., accepted by IEC

6.2.2. Evaluation

- Visual: No fiber exposure, no cracks, no damage to the material
- Mechanical properties: up to 80% retention of the original impact resistance (according to ASTM D 256-92 standard) and flexural strength.

6.3. Type test report

The following data shall be noted in the type test report:

- The values before and after each test for each tested sample.
- The catalogue no. of the raw material of the samples.
- The dimensions of the samples.

Remarks:

- ❖ During the mass production, the manufacturer shall assure that the items are made of materials identically with the samples, which passed successfully the test.
- ❖ Israel Electric Corp. reserves the right to demand to repeat the type tests during the mass-production of the required items.

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7. PACKING

- 7.1. Packing requirements refers to enclosures to M.A.
- 7.2. Each enclosure or M.A. will be packed into a POLYETHILANE BAG, made of strong enough thickness, minimum 35 microns.
- 7.3. Each enclosure or M.A. will be put inside a cardboard box. On the box will be printed in (large letters):
- Name of the supplier
 - Name of item
 - I.E.C item's catalogue no.
 - Catalogue no of item by supplier
 - Quantity of pcs. box
 -
- 7.4. The supplier must receive prior to production I.E.C.'s approval for packing and delivery of the items to I.E.C's stores
- 7.5. Each package shall be clearly marked in print (large letters) with following:
- Manufacturer's name or Trade Mark
 - Israel Electric Corp. Catalogue no.
 - Order no.
 - Serial no.
 - Part number
 -
- 7.6. Each shipment shall be accompanied by certification attesting the conformance of the shipment to the Specification. Certificates shall contain test results identifiable to the acceptance criteria and the items shipped. Documentation shall be submitted in English or have certified English translation attached.
- Certification shall be provided attesting to the fact that special processes used in the manufacture and testing of items supplied do conform to the project Specifications. The certificates shall include the signature and name of the agency performing the tests and shall the signature and name of the agency performing the test be subject to the review and acceptance of the Purchaser
- 7.7. A Quality Control label shall be attached to each packaging.
- 7.8. The packaging shall be approved by I.E.Corp. before the first supply

8. QUALITY ASSURANCE

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

9. QUALITY CONTROL

Quality control requirements will be according to **I.E.C.** standard **Q-APP-02 Rev.45-**

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10. PROTOTYPE APPROVAL

10.1. 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 .

10.1.1. After notification of award and before production of all the ordered items, the supplier must deliver the following details to the purchaser for prototype approval and according to the required schedule attached in **appendix A.**

10.1.2. For purposes of the Prototype approval, the manufacturer shall perform the complete type tests as required in this specification.

10.1.3. 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.

10.1.4. The contractor shall submit to the Israel Electric Corp. one 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.

10.1.5. The Contractor shall manufacture one unit of each item as a prototype for the Israel Electric Corp. approval, including drawings and packing details.

10.1.6. 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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10.2. 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

- 10.2.1.** 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 "D".
 I.E.Corp. will forward answer to the supplier in the technical stage of the tender.

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APPENDIX

"A"

Schedule up to prototype approval (after notification of award)

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Schedule up to prototype approval (after notification of award)

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 of: Test plan: - The name of the performer laboratory and address (country, city, etc.) - A list of tests - Plain and schedule of the type test																
2	Israel Electric Corp. approval of the above documents after clarifications																
3	Execution and submission of the type test report for the proposed item																
4	Submitting of prototype																
5	Final prototype approval by IEC																

Signature of bidder: _____ Know how supplier signature: _____ Date: _____

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APPENDIX

"B"

SUMMARY OF DATA

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Summary of data:

- The bidder shall fully complete the summary of data for each offered item.
- The Israel Electric Corp. reserves the right to ignore proposals which didn't fulfill all of the technical data.
- Filling in the summary of data does not exempt the bidder delivering all the technical documents, as required in this specification.

- Bidder's name: _____
- Bidder's phone no.: _____
- Bidder's E-mail: _____
- Manufacturer's name and address: _____
- Manufacturer's E-mail: _____
- Manufacturing country: _____
- Manufacturer's signature: _____

Bid No.: _____

(Insert all data in this column)

1. <u>Documents:</u>	
1.1.Are the following documents attached to the proposal?	
(a) Valid ISO Standard 9001 certificate given by an authorized inspection agency.....(yes/no)	
(b) Appendix "E": Statement of manufacturing experience, signed by the bidder (yes/no)	
(c) Type test reports in accordance with of this Specification (yes/no)	
(d) Description of the locking system.....(yes/no)	
(e) Mounting instructions..... (yes/no)	
(f) Technical data of all the materials(yes/no)	
(g) Detailed drawings(yes/no)	
(h) Description of materials and technology (yes/no)	

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(i) Quality Assurance Manual including Quality Procedures (yes/no)	
(j) One sample of each proposed/similar item (yes/no)	
(k) Know-how Agreement according to clause APPENDIX "F" (yes/no)	
(l) Appendix "A" – schedule up to prototype approval, signed by the bidder (yes/no)	
(m) Appendix "C" – statement of obligation – conform to specification requirements (yes/no)	
(n) Appendix "D" – statement of obligation – same product, signed by the bidder (yes/no)	
(o) Reference list (yes/no)	
(p) Spare parts list (yes/no)	
(q) Details about IP..... (yes/no)	
(r) A detailed list according to 3.20 (yes/no)	
2. <u>Service conditions:</u>	
4.1 Permissible ambient air temperature: • maximum (°C) • minimum (°C) • daily average (°C)	
4.2 Permissible relative humidity: • maximum..... (%) • daily average..... (%) • monthly average..... (%)	
4.3 Special conditions (yes/no)	
3. <u>Minimum lifespan</u>	
4. <u>Technical requirements</u>	
4.1. Material and Construction:	
Data of materials (yes/no)	
<u>Mechanical features:</u>	
(a) Charpy impact test.....(kg/m ²)	
• according to which standard	

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• attached test report No.	
(b) Flexural modules.....(MPa)	
• according to which standard	
• attached test report No.	
<u>Electrical features</u>	
(a) <u>dielectric strength</u> ... (kV/mm ²)	
• according to which standard	
• attached test report No.	
(b) Volume resistivity.....(Ohm·m)	
• according to which standard	
• attached test report No.	
(c) Resistance between metallic inserts (Ohm)	
• according to which standard	
• attached test report No.	
<u>Physical features</u>	
(a) <u>temperature resistance</u>(°C)	
• according to which standard	
• attached test report No.	
(b) <u>stability by light</u>	
• according to which standard	
• attached test report No.	
<u>water absorption:</u> (≤-mg)	
• according to which standard	
• attached test report No.	
<u>flame resistance:</u> self-extinguishable	
• according to which standard	
• attached test report No.	
<u>Embedded nuts</u>	
a) Material of all embedded nuts	
b) All the embedded nuts will be placed according to the specification (yes/no)	
c) The size of the embedded nuts.....	
d) The minimum bending value.....	
<u>Protection against corrosion by:</u>	
- The thickness of the protection layer of all metallic part.....	

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- The thickness of the protection layer of all screws and nuts (according to Standard DIN 50960).....	
5. <u>Type tests report</u> Are the following Type Tests Reports attached to the proposal: 5.1. Degree of protection test report..... (yes/no) No. of test report.....	
5.2. Aging test report (yes/no) • No. of test report • Attached samples. (yes/no, number of samples)	
6. <u>Prototype approval</u> 6.1. Did the bidder supply any of the proposed items in the last five years? (yes/no) 6.1.1. if yes: - Is request to be exempted from prototype approval attached? (yes/no) - Is Appendix "D" (statement of obligation – same product) attached ? (yes/no)	
6.2. Will the Contractor submit to Israel Electric Corp, for the Prototype approval, the following:	
• Samples (yes/no)	
• test reports (yes/no)	
• drawings (yes/no)	
• QC (yes/no)	
6.3. Is the schedule up to the prototype approval attached?(yes/No)	
7. <u>Packaging</u> Will each package be clearly marked in print (large letters) with following:	
• Trade Mark (yes/no)	
• Israel Electric Corp. Catalogue no. (yes/no)	
• Order no. (yes/no)	
• Serial no. (yes/no)	
• Part number (yes/no)	

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8. <u>Quality assurance and production quality control</u> Is the manufacturer's quality control manual attached (Yes/No)	
9. <u>Conformity with Bid documents</u> Bidder hereby certifies that he agrees to all the provisions of the Inquiry Documents. Bidder hereby certifies that he agrees to all conditions of the cover letter of the Israel Electric Corporation Limited, which accompanied the Proposal Documents. Date of Bid _____ Signature of Bidder _____	

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APPENDIX

"C"

Statement of obligation – conform to specification requirements

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Subject: Statement of obligation

We hereby undertake that the proposed items will be accordingly to the requirements specified in specification NPS-87.

Tender No.: _____

Manufacture name: _____

Supplier name: _____

Date: _____

Supplier Signature: _____

Manufacture Signature: _____

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APPENDIX

"D"

Statement of obligation – same product

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Subject: Statement of obligation

We hereby undertakes that the proposed products 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: _____

REMARKS:

- ❖ **The bidder shall attach a list of all products already supplied to the IEC.**
- ❖ **The list shall include the following details:**
 - **Item description**
 - **IEC cat. No**
 - **Manufacturer P/N**
 - **Date of most recent supply.**

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APPENDIX

"E"

Statement of manufacturing experience

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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 or similar equipment, for at least 3 years in the last 5 years, prior to tender submission.

Similar means: The same enclosures with another dimensions manufactured from the same material and in the same technology.

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"

KNOW HOW

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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

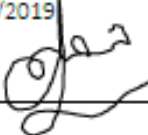
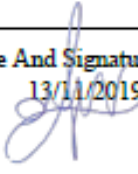
"G"

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

	THE ISRAEL ELECTRIC CORPORATION LTD. Procurement Division QUALITY CONTROL UNIT		
TITLE	APPENDICES FOR CONTRACTS / ORDERS	Spec. No.	Q - APP - 02-PR
		Rev.	05
		Status	05/11/2019
SUB TITLE	QUALITY REQUIREMENTS	Volume	PAGE 1 FROM 7

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/Contact, 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 B. Ben-Akiva Q.C. Unit Quality Engineering	CHECKED BY K. Arbiv Manager Of Quality Control I.E.C	APPROVED BY 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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TITLE	APPENDICES FOR CONTRACTS / ORDERS	Spec. No.	Q - APP - 02-PR
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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									

	THE ISRAEL ELECTRIC CORPORATION LTD. Procurement Division QUALITY CONTROL UNIT		
TITLE	APPENDICES FOR CONTRACTS / ORDERS	Spec. No.	Q - APP - 02-PR
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EXHIBIT B

INSPECTION NOTIFICATION.

Supplier details:	
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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:

Israel Electric Corporation Ltd. Grid Engineering Division Distribution Engineering Unit	
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APPENDIX

"H"

Revision History

Israel Electric Corporation Ltd.
Grid Engineering Division
Distribution Engineering Unit

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Version	Date	Update by	Modifications
4	02/2022	Yazan Khatib	The revision include the following : 1. Revised due to update necessary. 2. General errors are corrected in all section. 3. Clause 3 requirements update. 4. Clause 4 standards update. 5. Clause 5.20 – Base for metering update. 6. Clause 10 Prototype Approval update. 7. Appendix "C" (statement of obligation – conform to specification requirements) addition. 8. Appendix "D" (statement of obligation – same product) addition. 9. Appendix "G" (Standard specification for quality control) update. 10. Appendix "H" (Revision History) addition. 11. Change passivation standard (clause 5.5.3) 12. Items list updated.
5	04/2023	Yazan Khatib	The revision include the following: 1. Revised due to necessary update. 2. Clause 5.4.2 update. 3. Clause 5.15 update: a. Remove requirement for approval mark for electrical components. 4. Clause 5.17.3: a. Remove requirement for approval mark.