SPECIFICATION FOR CENTERAL METERING CABINET ("CMC")

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1. SCOPE

1.1. Scope of supply

The scope of supply consists of two parts (1.1.1. and 1.1.2.):

1.1.1. Non-equipped Central Metering Cabinets (henceforth referred to as CMC). Manufacturing; testing, preserving, packing and furnishing of low voltage CMC listed in the following table:

No.	IEC Catalog No.	Item Description	Sketch No. in Appendix E
1	5289546	Non-equipped CMC for 4 meters	E.1
2	896100	Non-equipped CMC for 6 meters with copper adaptor for fuserail size "2"	E.2
3	5253766	Non-equipped CMC for 6 meters without copper adaptor for fuserail size "2"	E.2
4	505578	Non-equipped CMC for 9 or 12 meters with installation plate for L.V disconnector	E.3
5	5253767	Non-equipped CMC for 9 or 12 meters without installation plate for L.V disconnector	E.3

For the items listed in this part, the supplier who wins the tender shall receive from IEC two semi cylinder lock for each item:

- **Semi cylinder lock, white - IECorp. cat.no. 3414398**
- **Semi cylinder lock, green - IECorp. cat.no. 3414372**

1.1.2. Equipped Central Metering Cabinets (henceforth referred to as Equipped CMC). Manufacturing, assembling, testing, preserving, packing and furnishing of low voltage CMC listed in the following table:

No.	IEC Catalog No.	Item Description	Sketch No. in Appendix E
6	5290381	Equipped CMC for 4 metering without disconnector	E.4
7	505586	Equipped CMC for 6 metering with disconnector	E.5
8	5016728	Equipped CMC for 6 metering without disconnector	E.6
9	505552	Equipped CMC for 9 metering with disconnector	E.7
10	5016718	Equipped CMC for 9 metering without disconnector	E.8
11	505594	Equipped CMC for 12 metering with disconnector	E.9
12	5016730	Equipped CMC for 12 metering without disconnector	E.10

For the items listed in this part, the supplier who wins the tender shall produce the cabinets as specified in the previous part (1.1.1.) assembled with additions parts as shown in the drawings attached in the specification.
The cabinets shall be supplied to the IECorp. Provided with all the parts found in the drawings in this specification and shall be assembled acc. to the drawing.

1.2. Uses
Used for metering of L.V. customers.

1.3. Utilizations
In L.V (400V) networks.

2. THRESHOLD CONDITIONS

According to the tender documents.

3. DOCUMENTS AND SAMPLES FOR THE PROPOSAL

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

3.1. Valid ISO 9001certificate as defined in threshold conditions.
3.2. Reference list certifying the compatibility of the manufacturer/know-how supplier with experience required as required in threshold conditions.
3.3. Technical features of the heat molded glass fiber reinforced polyester according to clause 5.3.7 .
3.4. Technical features of the transparent window according to clause 5.3.11.2
3.5. Type Test Report which shall attest that the required CABINETs are tested regarding to clause "Tests"
Alternatively, type tests for "Similar" cabinets and Appendix "J"- statement of obligation, type test in case of award of bid.
The test report must include all the tests required by the relevant standards and all the results. A laboratory, authorized according to the International Standard ISO/IEC Guide 17025 shall perform the tests.
The type test shall be from manufacturer or from the know-how supplier in the case of know how agreement.
("Similar" means the same cabinets with different dimensions manufactured from the same material and in the same technology).
3.6. Appendix B: know how agreement, signed by the manufacturer if relevant
3.7. Appendix C: schedule for delivery approval, signed by the manufacturer.
3.8. Appendix D: Completed and filled in summary of data, signed by the manufacturer.
3.9. Appendix I: Statement of manufacturing experience signed by the manufacturer.

3.10. 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.).

3.11. List of items to be assembled containing the manufacturers' names of the items and models.

3.12. Mounting instructions.

3.13. Description of the locking system.

3.14. Description of materials and technology for manufacture of the required CABINET or * **"Similar"** CABINET.

3.15. Quality Assurance Manual including Quality Procedures.

3.16. Appendix "K": A written statement by the bidder in which he undertakes to conform to all the requirements of the specifications and tender's documents.

3.17. One (1) sample of the proposed or similar cabinet – none equipped

- "Similar" item is described in clause 3.4 .
- It's possible to submit single sample for more than one proposed item if said sample constitutes a Similar item for the proposed items.
- The sample shall be from the manufacturer production line or from the know-how supplier (in the case of know how agreement).
- The sample shall be supplied up to (4) week after the technical proposal submission day.
- The proposer may ask for an extension for the sample submission.
- The sample shall be complying with all the requirements in this specification.

REMARK: Existing supplier (supplier who supplied the ordered item to the IECorp. in the last five (5) years) may ask to be exempted from submitting the sample\s. a request shall be sent to IECorp including Appendix "L" signed. IECorp shall reply during technical stage .

3.18. Prototype approval acceptance letter – see clause 11.

3.19. Spare parts list including Manufacturer P/N for each part.

3.20. If the bidder intends to supply products that are not previously approved by the IECorp., the bidder is required to submit the following documents according to the following table:

ITEM	.APP. No	Standard/Specification
Cable lugs	F.1	Acc. specification NPS-58
Wires	#	Acc. Israel standard 60227
Clamps for 35 mm din rail	F.2	Acc. specification NPS-247
Cover for wire	F.3	Acc. specification NPS-277
Clear plastic cover	F.4	Acc. specification TSC-1763
Plastic channel width 30 mm depth 25 mm	#	Israel standard 1381
Copper end sleeves for wires	F.5	Acc. standard DIN46228
Insulator support L.V 40 or 30 mm	F.6	Acc. specification NPS-330
Flexible cable 50/150 sq.mm	F.7	Acc. specification NPS-89
Fuse rails	F.8	Acc. to the remarks & NPS-40

Fuse switch disconnector	F.9	Acc. to the remarks & NPS-207
Meter's board	F.10	Acc. specification NPS-87

REMARKS:

- **Bidder which will not submit all the above will 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 copy (hard copy is not needed in case of electronic submission).**
  The technical documentation shall be organized in folders as follow:
  - **Test reports**
  - **Technical documentation for each proposed item**
  - **Appendices**

4. MANUFACTURING STANDARDS

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

ASTM G154	Standard Practice for Operating Fluorescent Ultraviolet (UV) Lamp Apparatus for Exposure of Materials
ASTM D 256	Standard Test Methods for Determining the Izod Pendulum Impact Resistance of Plastics
DIN EN ISO 62	Plastics Determination of Water Absorption
DIN EN ISO 179	Plastics - Determination of Charpy Impact Strength
DIN EN ISO 877	Methods Of Exposure of Plastics to Direct Weathering, to Weathering Using Glass-Filtered Daylight, and to Intensified Weathering by Daylight Using Fresnel Mirrors
DIN 933	Hexagon Screws; Thread Approximately to Head, Metric
DIN 53462	Testing of Plastics; Martens Method of Determining the Temperature of Deflection Under A bending Stress
IEC 60068-2-5	Environmental testing - Part 2-5: Tests - Test S: Simulated solar radiation at ground level and guidance for solar radiation testing and weathering
IEC 62631-3-2	Dielectric and resistive properties of solid insulating materials - Part 3-2: Determination of resistive properties (DC methods) - Surface resistance and surface resistivity
IEC 61439-1	Low-Voltage Switchgear and Controlgear Assemblies - Part 1: General rules
IEC 61439-5	Low-Voltage Switchgear and Controlgear Assemblies - Part 5: Assemblies for power distribution in public networks
IEC 62208	Empty enclosures for low-voltage switchgear and controlgear assemblies – General requirements
IEC 60529	Degrees of Protection Provided by Enclosures (IP-Code)
ISO/IEC 17025	General Requirements for the Competence of Testing and Calibration laboratories
ISO 468	Surface Roughness
UL-94 Standard	Tests for Flammability of Plastic Materials for Parts in Devices and Appliances

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.

- ❖ CABINET, including all appurtenances and accessories, shall be fabricated, inspected, tested and preserved in compliance with the Standards as, specified herein, unless otherwise indicated.
  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.

5. TECHNICAL REQUIREMENTS

5.1. Service conditions

The service conditions shall be in general according to IEC 61439 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. High atmospheric humidity as experienced in coastal or desert areas.
5.1.4. Direct and continuous brilliant solar radiation for long periods.
5.1.5. Annual variation in air temperature: -10°C to +50°C
5.1.6. Annual mean air temperature: +25°C
5.1.7. Maximum relative humidity: 95%
5.1.8. Average relative humidity: 70%
5.1.9. Average ambient temperature measured over a period of 24 hours does not exceed: +35°C
5.1.10. Maximum difference of ambient temperature from day to night: +25°C
5.1.11. Long summer periods with OTCs of sunshine (1120 W/sqm) according to IEC Publication 60721-3-4/95.
5.1.12. Altitude: up to 1000m.

5.2. Assembly instruction:

5.2.1. Detailed sketches for assembling the central metering cabinet are attached in Appendix E.
5.2.2. All the parts of the cabinet must be assembled according to the sketches.
5.2.3. Check that each part is correctly assembled and the screw is screwed with the correct torque (Appendix E & Appendix H).
5.2.4. All screws and bolts in the busbars shall be installed "outwards", meaning that the screw/bolt head be on the cabinet back side of the busbar.
5.2.5. The supplier/manufacturer shall provide a metal spacer (distancing plate or equivalent) to be mounted only on a specific screw on the busbars as specified in the drawings in Appendix E.

The cable lug installed on that screw must be attached to this spacer and not directly to the busbar - in order to guarantee safe clearance.
The spacer must be rated for a current of at least 400 A.
The manufacturer shall supply such a part for approval by the IEC.
Different clearance solution other than spacer offered by the manufacturer may be considered by IEC.

5.2.6. The length of the wire that coming out from the meter's board shall be 13.5 cm.

5.2.7. The end sleeve shall be compressed by two compressions on each cable coming out of the meter's board.

5.2.8. The cover of wire shall be installed on the compressed end slave on each wire that coming out from the meter's board.

5.3. Technical Requirements for the CABINET

5.3.1. Current and Voltage ratings:

- Rated voltage $U_n = 230/400V$
- Rated operational voltage $U_e = 230/400V$
- Rated insulation voltage $U_i = 690V$
- Rated impulse withstand voltage $U_{imp} = 6kV$
- Rated current of the ASSEMBLY $I_{nA} = 400A$
- Rated current of a circuit $I_{nc} = 400A$
- Rated conditional short-circuit current of an ASSEMBLY $I_{cc} = 25kA$

5.3.2. Installation

The CABINET is of indoor type installation.

5.3.3. Ventilation

The CABINET shall be suitable for outdoor mounting conditions and shall assure natural ventilation of the electrical equipment, which will be installed inside.

5.3.4. Degree of protection

The degree of protection of the CABINET mounted on the BASE shall be IP44 according to IEC Standard 60529.

5.3.5. Protection and short circuit withstand

The CABINET shall withstand a short circuit current of at least 25 kAmps/1sec.

5.3.6. Dimensions – acc. To DIN 43629

The CABINET shall have the following clearance dimensions:

CMC	Lower part			Upper part		
	$Height_{min}$ [mm]	$Width_{min}$ [mm]	$Depth_{min}$ [mm]	$Height_{min}$ [mm]	$Width_{min}$ [mm]	$Depth_{min}$ [mm]
4	735	480	260	735	480	260
6	735	480	260	985	480	260
9/12	735	960	260	985	960	260

Remark: For others dimensions please see attached drawings in appendix E.

5.3.7. Materials and Construction

- The CABINET shall be of a double-insulated type.
- The CABINET shall be of a self-supporting type construction.
- The CABINET shall be made of heat molded glass fiber reinforced polyester, without wood insertion.
- The relevant technical feature of the molded glass fiber reinforced polyester shall be:
  - Mechanical features
    Impact resistance: > 60 kJ/m^2 (according to DIN EN ISO 179).
  - Electrical features
    - Dielectric resistance >18 kV/mm (according to IEC 60243).
    - Superficial resistance > 10^{12} Ohm (according to IEC 62631-3-2).
  - Physical features
    - Stability of shape > 200°C (according to DIN 53462, martens method).
    - Temperature resistance -50÷150°C - continuous – ISO 877.
    - Water absorption ≤ 45 mg (acc. to DIN EN ISO 62).
    - Flame resistance: 94V-0 (acc. to UL 94)
    - Roughness of the surface: $0.01 \leq R_a \leq 0.63$ (acc. to ISO 468 standard).
- The CMC shall be made from an ensemble of 2 DIN type cabinets, connected by 4 screws.
- Upper part: for metering installations: the equipment shall be mounting on the back of the cabinet with inserted nuts or on a polyester plate provided with inserted nuts.
- Lower part: for installing bus bars 185 mm for fuse rails acc. to VDE /DIN standard.
- On the roof of CMC shall be installed "PG" glands from plastic for cables 2*10 mm2 until 4*16 mm2. The glands shall be fire resistant and closed with a cap .The use of the glands shall not damage the IP or mechanical properties of CMC. The no. of glands = with the no. of meters.

- A separation plate, made of the same polyester material and at least 4 mm thick, must be installed between the CMC components. This plate should be easy to remove and install and must have a locking mechanism accessible from the bottom part of the CMC only, the Proposer shall submit locking mechanism plan for IECorp approval.
- The connection between the CMC parts shall be that the insulation and all the characteristics of cabinet inc. the capacity to be assembled on a base shall be maintained.
- For 12 meters CMC with installation plate, the cabinet will be supplied with a polyester plate for the L.V. disconnector – acc. to the drawings supplied with the bid.
- See also in the bid papers if the cabinets shall be supplied with bus bars or with different equipment.
- The CMC shall be supplied with the DIN rail 35 mm installed in the upper part or the upper cabinet – for the clamps. The clamps position shall be in the places of the glands.

5.3.8. Embedded nuts

- The embedded nuts in the walls (including the back wall) and doors shall be made of brass $CuZnPb_3$.
- The embedded nuts shall be placed according to the attached sketches.
- In the external part of the cabinet will be 8 nuts (2 for each side of the parts) in order to fix the cabinet to the wall and for carry each assembled part.
- The embedded nuts shall be at least of M10 dimensions on the back and M8 on the side of the cabinet.
- The nominal value for bending in the embedded nuts:
  - M6 >5 NM
  - M8 >11 NM
  - M10 > 33 NM
- Each screw shall be according to DIN 933 - 8.8.
- All metallic elements used in the assembling of the Cabinet and the Base shall be zinc plated + passivation against corrosion. The thickness of the zinc layer shall be:
  - Minimum 20 microns for the metallic parts.
  - Minimum 10 microns for screw and nuts.

5.3.9. Doors and locking device

- The cabinet shall be provided with door/doors.
- The cabinet doors must have hinges that enable easy removal without requiring any tools.
- The door shall be provided with a locking device for a semi-cylindrical lock. The door opening >95°.

- The locking device shall be suitable for a concealed semi- cylindrical lock, turning 90° to the right.
- The green semi-cylinder lock will be provided separately in a plastic bag placed inside the cabinet.
- The locking device shall be provided with 3 locking points.

Note: the manufacturer shall supply the doors also as a separate maintenance item for future replacement, and they shall be included in the approved spare parts list.

5.3.10. Warnings sign

The warning signs shall be according to the specification attached sketch - Appendix E & G.

5.3.11. Transparent window

The metering cabinets shall be provided with transparent window/s.
The window shall be made from two parts:

1. Frame from UV resistant polyamide or from special rubber.
2. The "glass" from a sheet of UV resistant polycarbonate, treated with a special treatment against of UV radiation on both sides. temperature resistant up to 120 ˚C, flame rate V2 according to UL94.

The window shall be assembled in such way that will be no deterioration in the transport, no damage to IP or mechanical properties and will be long lasting.
The window shall be fixed from the interior door side with 2 metallic/plastic bars in order not to permit the window dismantling.

6. TESTS

Note: All type tests shall be performed with the window fully assembled in order to verify the durability of the materials under the specified test conditions.

6.1. Type test

A complete type tests according to IEC 62208 shall be performed on the empty cabinets with the following additional type tests according to IEC 61439 (parts 1 & 5):

- Resistance to corrosion test according to IEC 61439 (parts 1 & 5).
- Short-circuit withstand strength of the protective circuit shall be performed according to IEC 61439 (parts 1 & 5). For the prototype approval, the arrangement of the CABINET during the test shall be according to the attached drawing no. 12. The short circuit current shall run along the bus bars. The short circuit current shall be 25 kA/1 Sec.
- Verification of temperature rise test shall be performed according to IEC 61439 (parts 1 & 5). For the prototype approval, the arrangement of the

CABINET during the test shall be according to the attached drawing no. 12

- Verification of category of flammability test according to IEC 61439 (parts 1 & 5).
- Dry heat test according to IEC 61439 (parts 1 & 5).
- Verification of mechanical strength according to IEC 61439 (parts 1 & 5).

6.2. Type tests of the glass fiber reinforced polyester

The Type tests of the glass fiber reinforced polyester shall be performed in order to verify the features specified in this specification clause 5.3.7 .
The samples, which will be type tested, shall be from mass-production line of the CABINET or BASE.

6.3. Test of the embedded nuts

Each type (size) of the embedded nuts on back wall shall be tested for bending and tightening moment as required by this specification.

6.4. Test for transparent window

The Type test for transparent window shall be performed in order to verify the features specified in this specification clause 5.3.11.2

6.5. Routine Test and Routine Test Report

According to IEC 61439 (parts 1 & 5).

7. MARKING

Each cabinet shall be marked according to the sketches.
Each cabinet shall be marked (inside & outside of the CNC) with label that includes the following data:

- Manufacturer's name
- Manufacturing date
- Product name
- Manufacturer P/N
- IEC cat. no
- Stamp of Quality Control

The label shall be from long lasting material, the glue shall be suitable for polyester material.
The label shall be glued in the internal part of the upper cabinet door.

Each cabinet shall be marked with label that includes a QR code:

- The QR code shall be provided by I.E.Co

- The label shall be glued in the external part of the cabinet either the back or the side panels.
- The label and QR code shall be in size and location that enable scanning the QR code comfortably.
- The label shall be from long lasting material.
- The glue of the label shall be suitable for polyester material.

8. PACKING

8.1. The packaging shall be suitable for transportation and prolonged storage period.

8.2. The packaging shall prevent any deterioration during transportation and storage.

8.3. Each CABINET shall be covered by reusable hard plastic bag – The cover shall be resistant to rain and sun.
the plastic bag to be used for Equipped CMC shall insure complete insulation from weather conditions.

8.4. The CMC of 4 and 6 meters shall be packed on the pallet lying on the side in a quantity not exceeding 6 on the pallet.

8.5. The CMC of 9 and 12 meters shall be packed on the pallet lying on the side in a quantity not exceeding 3 on the pallet.

8.6. For Equipped CMC: each CMC shall be separated from the other using thin pieces of Styrofoam to ensure no damage occurs during transportation.

8.7. Each CABINET shall be connected to the pallet with bonding tape separately and finally all the package shall be connected together to the pallet with the bonding tape.

8.8. Each package shall be clearly marked in print (large letters) with following:
- Manufacturer's name or Trade Mark
- Product name
- I.E.C. item's catalogue no
- Supplier catalogue no
- Order no.
- Serial no.

8.9. 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 Hebrew 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.

8.10. A Quality Control label shall be attached to each packaging.

8.11. The packaging shall be approved by I.E.C. before the first supply.

8.12. The cabinets shall be supplied on a 1X1.2 wooden pallet provided by the manufacturer.

8.13. See more information in the bid papers.

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 Rev**. **5**.

11. PROTOTYPE APPROVAL

11.1. Prototype approval for new suppliers.
New supplier – Supplier that didn't supply the CMC to the IECorp. in the last five (5) years.

11.1.1. In a period of max four (4) months from notification of award, and before production for IEC of all ordered items, the Contractor shall manufacture one unit of CABINET as a prototype for the Israel Electric Corp. approval, including drawings and packing details.

11.1.2. For purposes of the Prototype approval, the manufacturer shall perform the complete type 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. 3 (three) sets 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.

11.2. Prototype approval for existing suppliers.
Existing supplier – Supplier who supplied the CMC to the IECorp. in the last five (5) years.

11.2.1. Existing supplier may ask to be exempted from prototype if in the technical bid the supplier will provide to IECorp. appendix "L"- same product.

12. DELIVERY APPROVAL CONDITIONS

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

12.1. In case of know how agreement all the tests for the proposed item will be acc. to clause 6 and from the "know how" recipient.
If the contractor fails to fulfill in the above requirements, in accordance with the terms of the tender documents and/or the order/contract within the periods above, it shall constitute a substantial breach, entitling the I.E.C. to be paid liquidated damages according to Annexure "A", and to pursue all other remedies available under the law for a substantial breach of contract.

12.2. Acceptance test:
The I.E.C reserves the right to verify the compliance of the delivered items with this specification.

Delivery which will not pass acceptance test will be rejected.

APPENDIX "A"

Standard specification for quality control: Q-APP-02 Rev.5

	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	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

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.

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.

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.

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.

	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 6 FROM 7

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
		Rev.	05
		Status	05/11/2019
SUB TITLE	QUALITY REQUIREMENTS	Volume	PAGE 7 FROM 7

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:

APPENDIX "B"

KNOW HOW"

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.

APPENDIX "C"

Schedule up to prototype approval (after notification of award)

APPENDIX "C" - 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.

		Week															
No.	STAGE	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: _____ Date: _____

APPENDIX "D

SUMMARY OF DATA

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 E-mail: _____

Manufacturing country: _____

Manufacturer's signature: _____

Bidder's signature: _____

	(Insert all data in this column)
1. <u>IEC. Cat. No</u>	
2. <u>Manufacturer's part number</u>	
3. <u>Documents</u>: 3.1 Are the following documents attached to the proposal? (yes/no)	
(a) Detailed drawings and cross sections of the CABINET	
(b) Mounting instructions	
(c) Details about ventilation	
(d) Description of the locking system	
(e) Description of materials and technology of the CABINET	
(f) Technical data of the glass fiber reinforced polyester / similar material	
(g) Samples of the GRP	
(h) Reference list	

	(Insert all data in this column)
(i) Spare parts list	
(j) Quality Assurance Manual including Quality Procedures	
(k) Preliminary Inspection and Test Plan	
(l) Valid ISO Standard 9001 certificate given by an authorized inspection agency	
(m) Know-how Agreement	
(n) Appendix "K": A written statement by the Proposer (Manufacturer) in which he undertakes to conform to all the requirements of this specification	
(o) Type test reports in accordance with Paragraph No. 6 of this Specification	
4. <u>Service conditions</u>: (yes/no) • Severe atmospheric and industrial air pollution, coal dust, sea salt. • Long dry period without any rainfall. • High atmospheric humidity as experienced in coastal or desert areas. • Direct and continuous brilliant solar radiation for long periods. • Annual variation in air temperature: -10°C to +50°C • Annual mean air temperature: +25°C • Maximum relative humidity: 95% • Average relative humidity: 70% • Average ambient temperature measured over a period of 24 hours does not exceed: +35°C • Maximum difference of ambient temperature from day to night: +25°C • Long summer periods with OTCs of sunshine (1120 W/sqm) according to IEC Publication 60721-3-4/95. • Altitude: up to 1000m.	
6. <u>Technical requirements</u> (yes/no) Current and Voltage ratings: – Rated voltage $U_n = 230/400V$ – Rated operational voltage $U_e = 230/400V$	

	(Insert all data in this column)
- Rated insulation voltage $U_i = 690V$ - Rated impulse withstand voltage $U_{imp} = 6kV$ - Rated current of the ASSEMBLY $I_{nA} = 400A$ - Rated current of a circuit $I_{nc} = 400A$ - Rated conditional short-circuit current of an ASSEMBLY $I_{cc} = 25kA$	
6.1 Is the CABINET suitable for outdoors mounting conditions? ..... (yes/no)	
6.2 Is the CABINET assuring natural ventilation of the electrical equipment installed inside? (yes/no)	
6.3 Degree of protection of the CABINET mounted on the BASE.....	
6.4 Clearance dimensions (Upper part): a) Height..... (mm)	
b) Depth..... (mm) c) Width..... (mm)	
6.5 Clearance dimensions (Lower part):	
a) Height..... (mm)	
b) Depth..... (mm)	
c) Width..... (mm)	
6.6 Is the CABINET of double-insulated type? ..... (yes/no)	
6.7 Material and Construction: 6.7.1 Is the CABINET made of heat molded glass fiber reinforced polyester material? (yes/no)	
6.7.2 <u>Mechanical features</u>: Impact resistance..... (kJ/m)	
• According to which standard.....	
• Attached test report no……..	
6.7.3 <u>Electrical features</u> (a) <u>Dielectric resistance</u>..... (kV/mm)	

	(Insert all data in this column)
• According to which standard.....	
• Attached test report no.	
(b) superficial resistance • According to which standard.....	
• Attached test report no.	
6.7.4 Physical features (a) stability of shape • According to which standard.....	
• Attached test report no.	
(b) temperature resistance • According to which standard.....	
• Attached test report no.	
(c) stability by light • According to which standard.....	
• Attached test report no.	
6.7.5 Tropical and moisture resistance ..... (without any degradation)	
• According to which standard.....	
• Attached test report no.	
6.7.6 Water absorption: ..... (≤--mg)	
• According to which standard.....	
• Attached test report no.	
6.7.7 Flame resistance: self-extinguishable	
• According to which standard.....	
• Attached test report no.	

	(Insert all data in this column)
separation plate: - made of the same polyester material and at least 4 mm thick, - Must be installed between the CMC components. - This plate should be easy to remove and install and must have a locking mechanism accessible from the bottom part of the CMC only. (yes/no)	
6.8 <u>Embedded nuts</u> a) Material of all embedded nuts.....	
b) All the embedded nuts will be placed according to the attached sketch..... (yes/no)	
c) The size of the embedded nuts.....	
d) The minimum bending value.....	
6.9 <u>Protection against corrosion by</u>: ..... - The thickness of the protection layer of all metallic part.....	
- The thickness of the protection layer of all screws and.....	
6.10 Will the CABINET be of a self-supporting type? ..... (yes/no)	
6.11 <u>Cabinet door</u>: - As per attached drawing No.	
- Will one of the panels be provided with a locking device and plate for a semi-cylindrical lock? ..... (yes/no)	
- Will the locking device be suitable for a concealed semi-cylindrical lock, turning 90° to the right? ..... (yes/no)	
– Will the cabinet doors have hinges that enable easy removal without requiring any tools? ..... (yes/no	
– Will The green semi-cylinder lock provided separately in a plastic bag placed inside the cabinet? ..... (yes/no)	
- Will the locking device be provided with 3 locking points? ..... (yes/no)	

	(Insert all data in this column)
6.12 Is the back wall of the CABINET made by SMC elements? ..... (yes/no) Please state the number of elements.....	
6.13 Is the back wall made by more than one element? ..... (yes/no) If yes, please describe the connecting method.	
7. <u>Type tests report</u> Are the following Type Tests Reports attached to the proposal: 7.1 IEC 62208 test report..... (yes/no) No. of test report.....	
7.3 <u>IEC 61439 tests</u>: • Resistance to corrosion..... (yes/no)	
• Short-circuit withstand strength of the protective circuit..... .... (yes/no)	
• Verification of temperature rise..... (yes/no)	
• Verification of category of flammability..... (yes/no)	
• Dry Heat test..... (yes/no	
• Verification of mechanical strenght..... (yes/no	
• No. of test report	
7.4 Test of the glass reinforced polyester…… (yes/no) No. of test report……	
7.5 Test report of the embedded nuts..... (yes/no) No. of test report.....	
8. <u>Prototype approval</u> 8.1 Will the Contractor submit to Israel Electric Corp, for the Prototype approval, the following: • One unit of CABINET and..... (yes/no)	
8.2 Is the schedule up to the prototype approval attached? ..... (Yes/No)	
9. <u>Packaging</u>	

	(Insert all data in this column)
Will each package be clearly marked in print (large letters) with following: • Trade Mark..... (yes/no)	
• Order no. ..... (yes/no)	
• Serial no. ..... (yes/no)	
10. <u>Quality assurance and production quality control</u> Is the manufacturer's quality control manual attached.....? (Yes/No)	

11. <u>Detailed list of all the components stated in the paragraph F of this specification, including: component name, producer, producer PN, comments:</u>

12. <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.

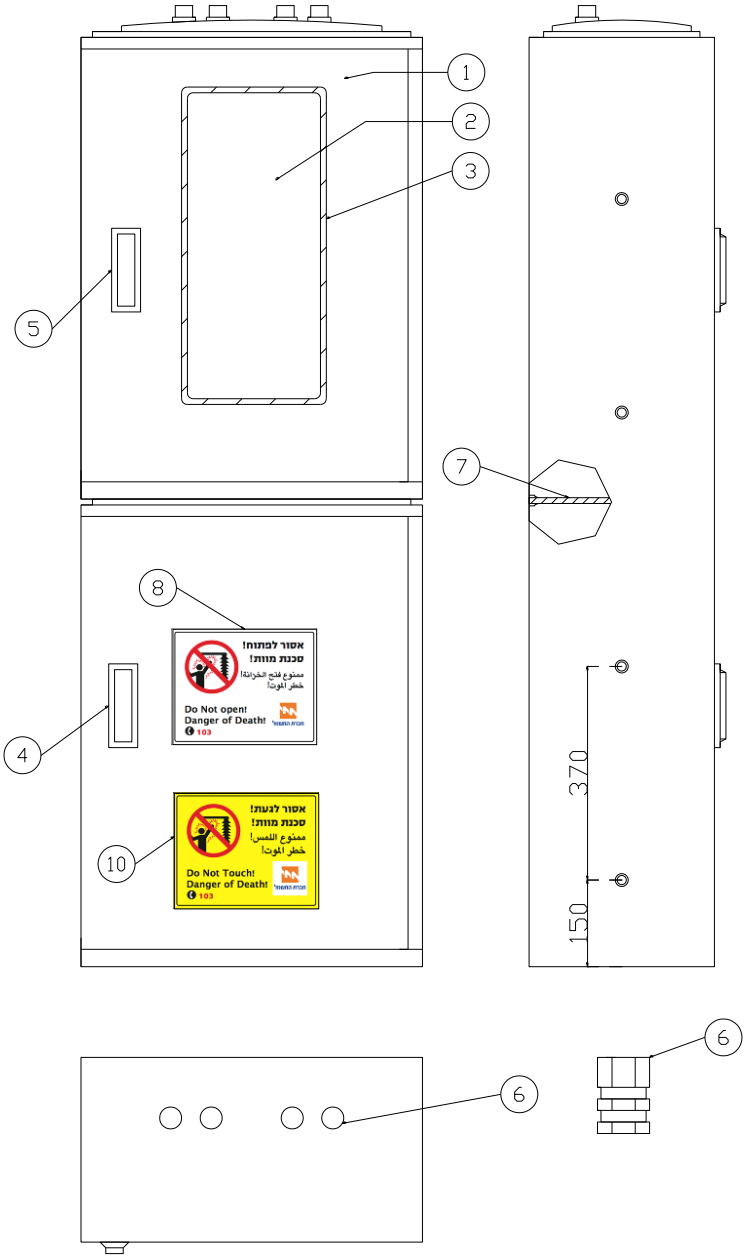
Date of Bid _____ Signature of Bidder _____

APPENDIX "E"

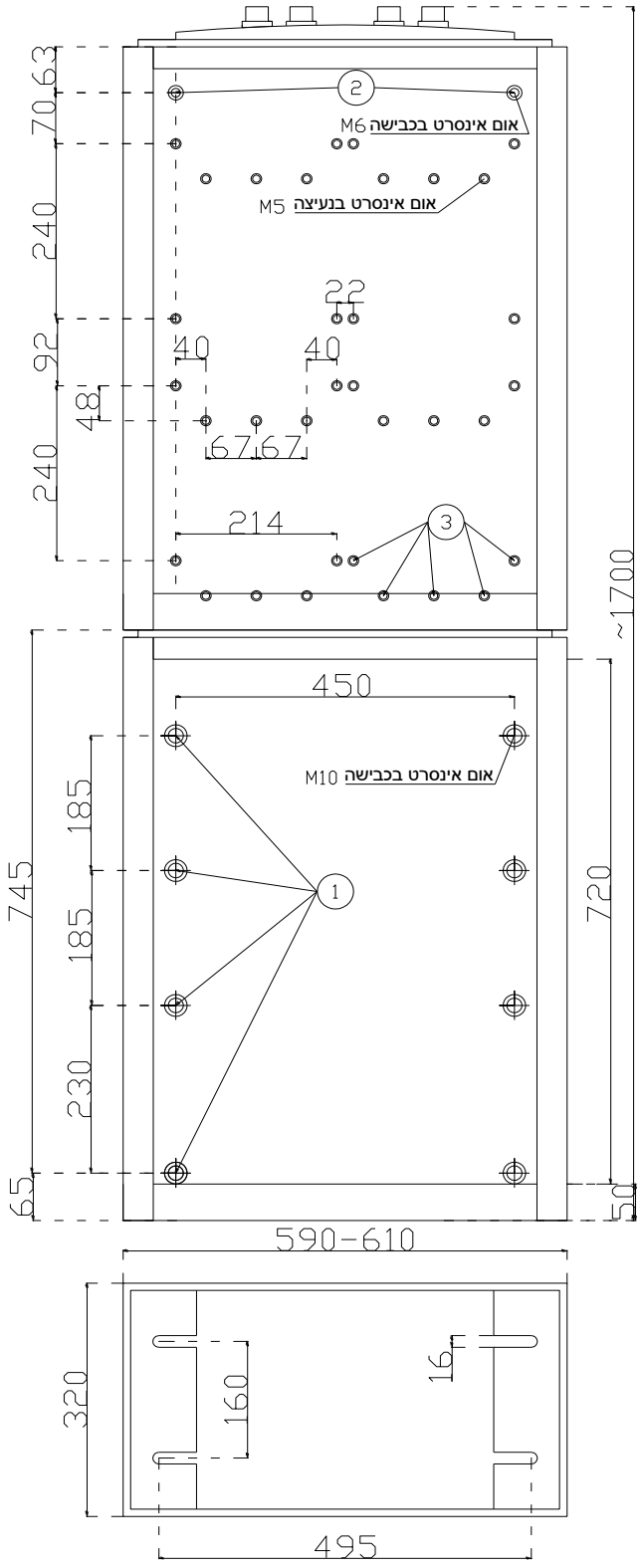
CMC DRAWINGS

APPENDIX "E" – CMC DRAWINGS

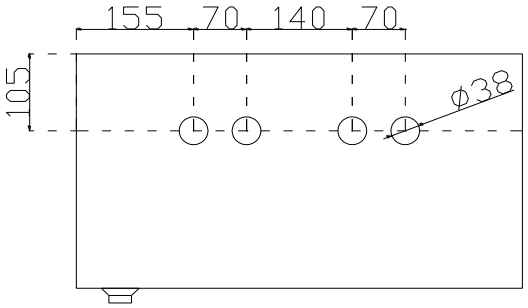
Sketch E.1 – Non equipped CMC for 4 meters (5289546):

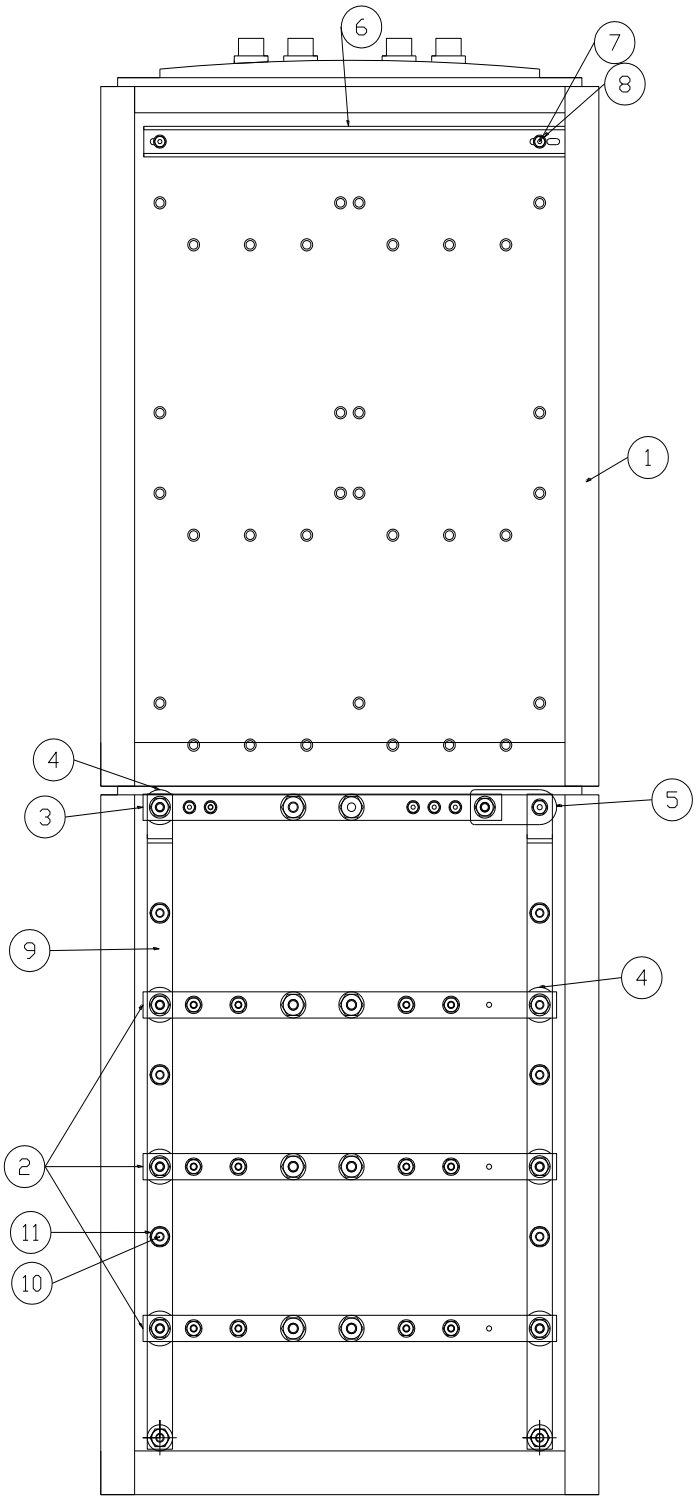


1. CMC for 4 meters.
2. Transparent window.
3. Frame for the window.
4. Semi cylinder lock – green.
5. Semi cylinder lock – white.
6. "PG29" cable glands.
7. Separation plate.
8. Warning sign (also inside the door - yellow) according to Appendix G.
9. M8 cold inserted nuts (in the both sides).
10. Warning sign for medical equipment according to Appendix G.

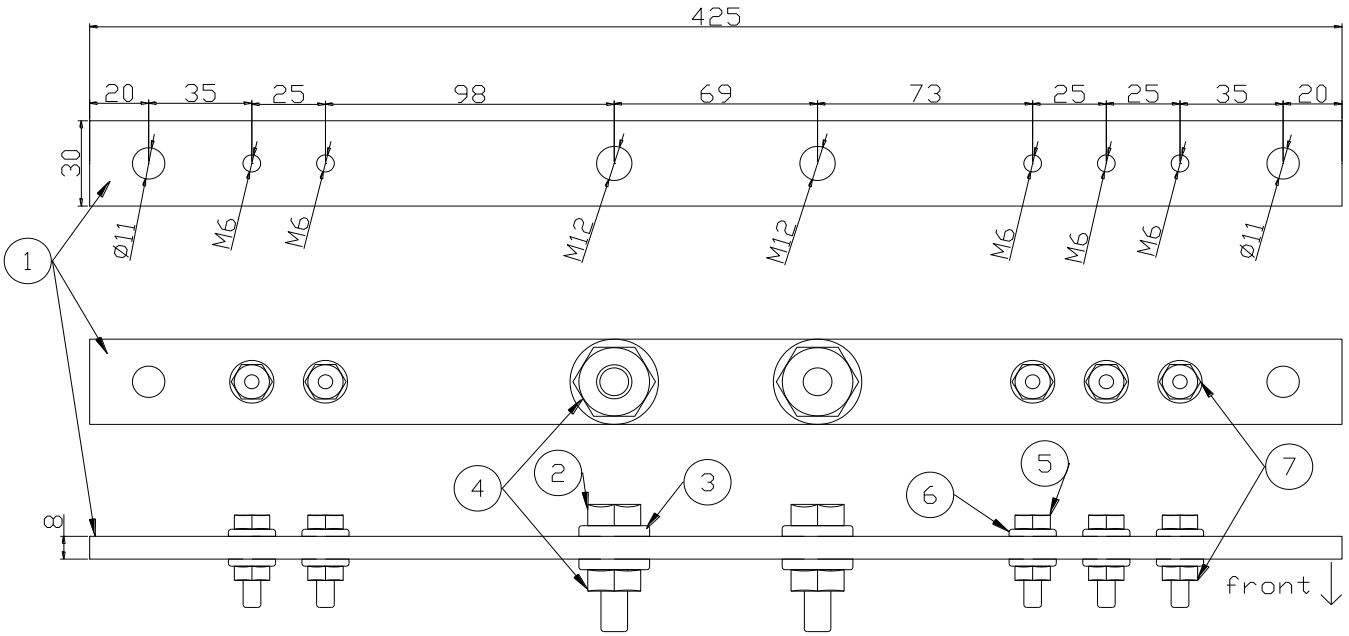


1. M10 hot pressed nuts.
2. M6 hot pressed nuts.
3. M5 cold inserted nuts.



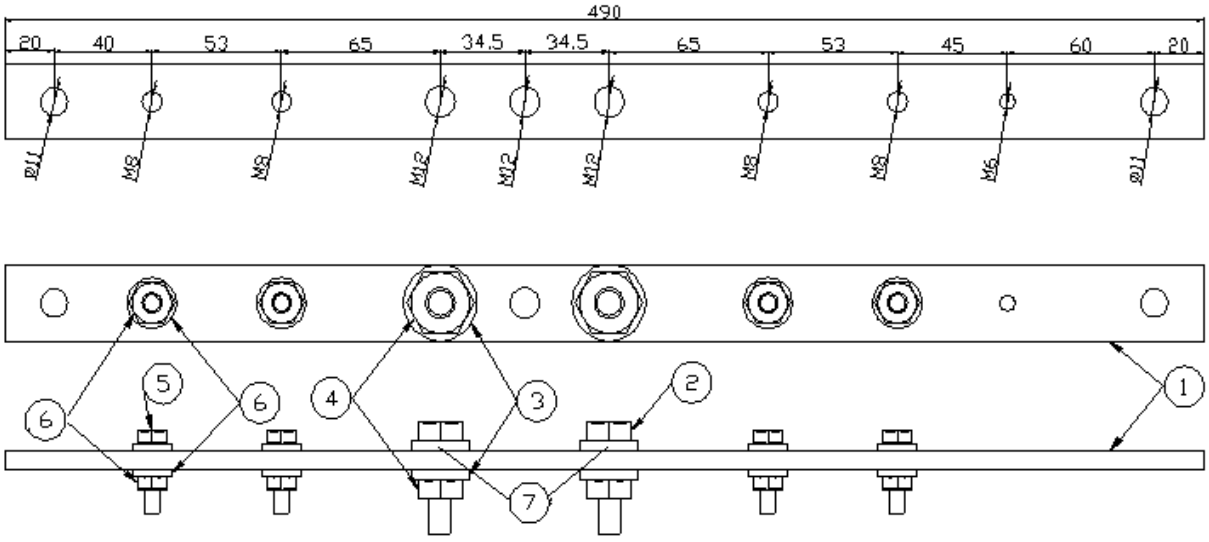


1. CMC for 4 meters.
2. Busbars for phase (3 pcs.).
3. Upper busbars for neutral.
4. 40 mm insulators (7 pcs.) according to Appendix F.
5. 40 mm insulators include lifting (1 pcs) according to Appendix F
6. 35 mm DIN rail.
7. M6X12mm screw according DIN 933, with zinc coating + yellow/blue passivation (dichromate), coating thickness of min 6 micron (2 pcs.).
8. Conical spring washer for M6 screw according DIN 6796, with zinc coating + yellow/blue passivation (dichromate), coating thickness of min 6 micron (2 pcs.).
9. Metallic support for insulators – (2 pcs).
10. M10X16mm screw according DIN 933, with zinc coating + yellow/blue passivation (dichromate), coating thickness of min 10 micron (6 pcs.).
11. Conical spring washer for M10 screw according DIN 6796, with zinc coating + yellow/blue passivation (dichromate), coating thickness of min 10 micron (6 pcs.).



1. Upper busbar for neutral E-Cu-F25 acc. DIN EN 13601 with coating thickness of min 20 micron – tin plated.
2. M12X40mm screw acc. DIN 933, coating thickness of min 12 micron (2 pcs.).
3. Conical spring washer for M12 screw acc. DIN 6796, coating thickness of min 12 micron (2 pcs.).
4. M12 nuts + conical spring washer connected together, coating thickness of min 12 micron (2 pcs.).
5. M6X30mm screw according DIN 933, coating thickness of min 6 micron (5 pcs.).
6. Conical spring washer for M6 screw according DIN 6796, coating thickness of min 6 micron (5 pcs.).
7. M6 nuts + conical spring washer connected together, coating thickness of min 6 micron (5 pcs.)

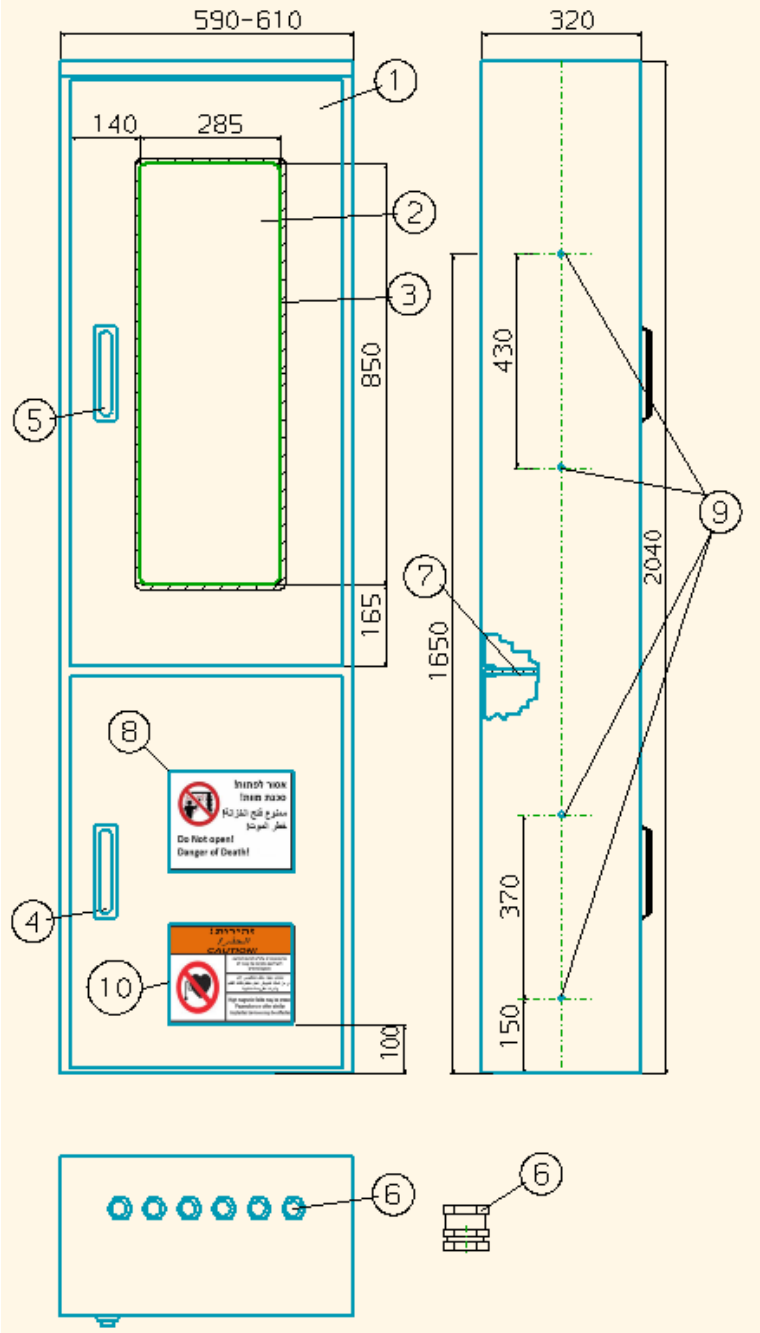
REMARK: All the screws, springs washer and nuts will plated with zinc coating + yellow/blue passivation (dichromate). The closing Torque of the screws and nuts of the busbar shall be According to Appendix H.



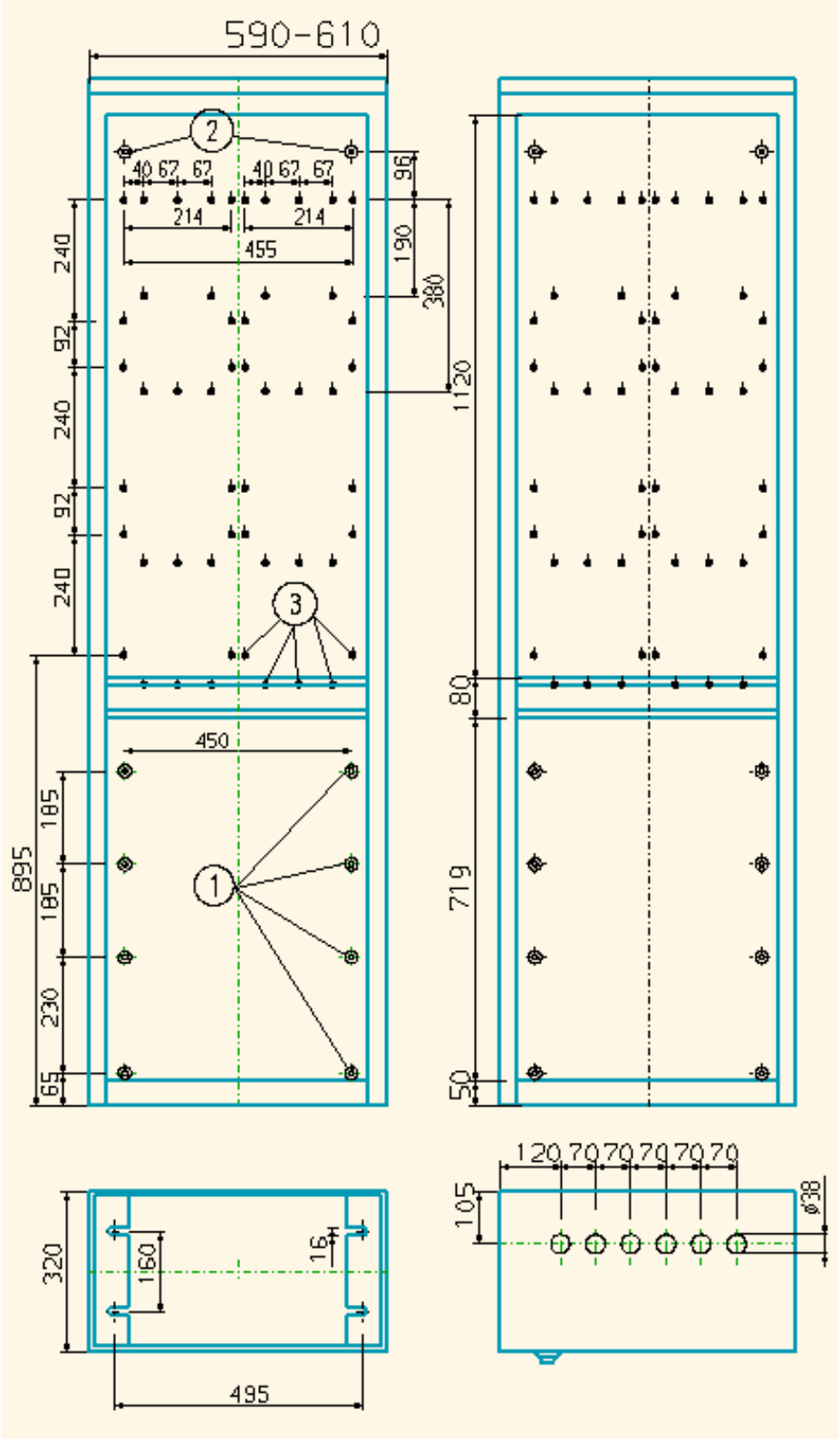
1. Busbar for phase E-Cu-F25 acc. DIN EN 13601 with coating thickness of min 20 micron – tin plated.
2. M12X40mm screw acc. DIN 933, coating thickness of min 12 micron (2 pcs.)
3. Conical spring washer for M12 screw acc. DIN 6796, coating thickness of min 12 micron (2 pcs.).
4. M12 nuts + conical spring washer connected together , coating thickness of min 12 micron (2 pcs.).
5. M8X35mm screw acc. DIN 933, coating thickness of min 8 micron (4 pcs.).
6. M8 nuts + conical spring washer connected together , coating thickness of min 8 micron (4 pcs.).
7. Metal spacer as specified in clause 5.2.5 (2 pcs.)

REMARK: All the screws, springs washer and nuts will plated with zinc coating + yellow/blue passivation (dichromate). The closing Torque of the screws and nuts of the busbar shall be According to Appendix H.

Sketch E.2 – Non equipped CMC for 6 meters (896100, 5253766):

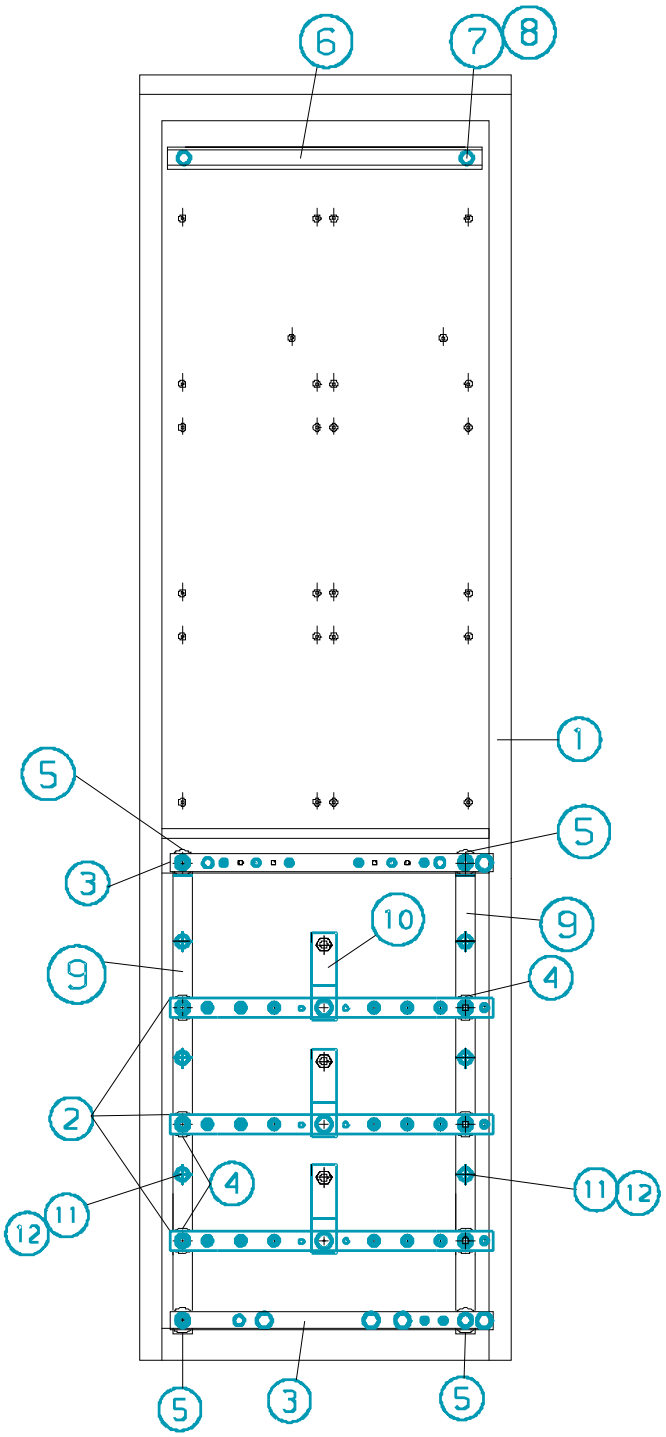


1. CMC for 6 meters.
2. Transparent window.
3. Frame for the window.
4. Semi cylinder lock – green.
5. Semi cylinder lock – white.
6. "PG29" cable glands.
7. Separation plate.
8. Warning sign (also inside the door - yellow) according to Appendix G.
9. M8 cold inserted nuts (in both sides).
10. Warning sign for medical equipment according to Appendix G.



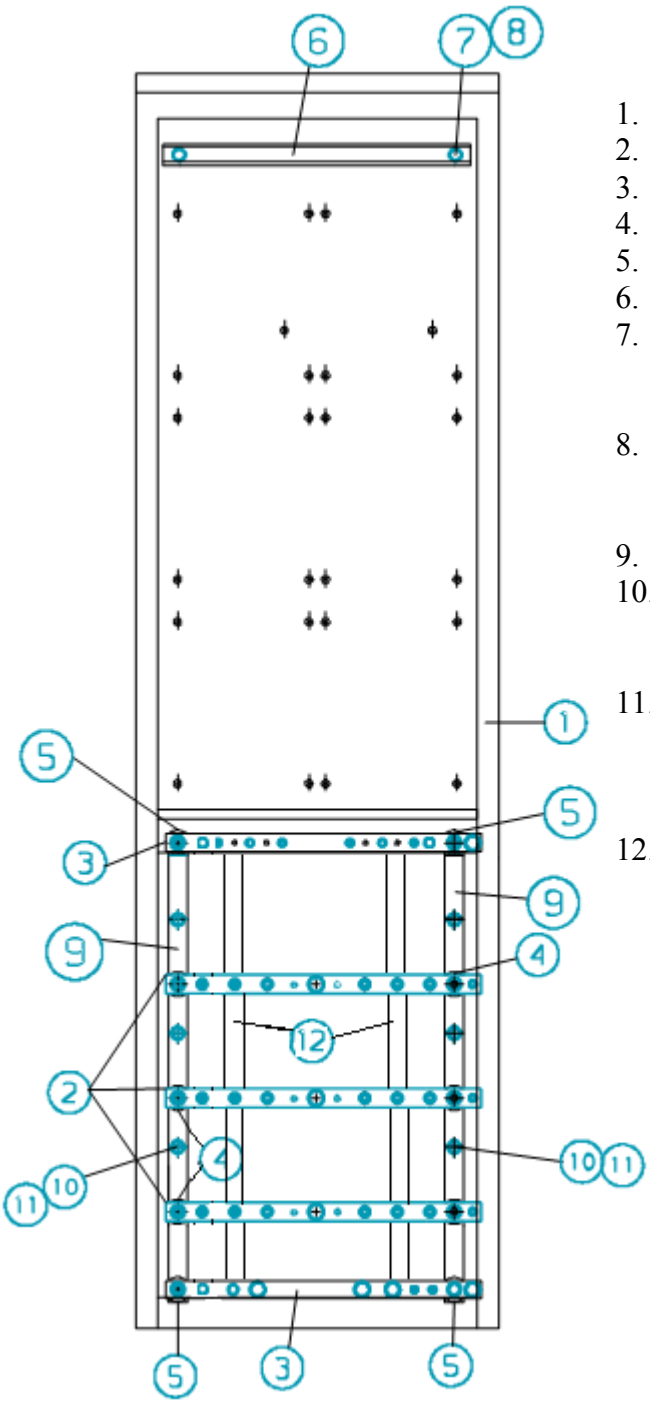
1. M10 hot pressed nuts.
2. M6 hot pressed nuts.
3. M5 cold inserted nuts.

General assembling for 6 meters with copper adaptor for fuserail (896100):



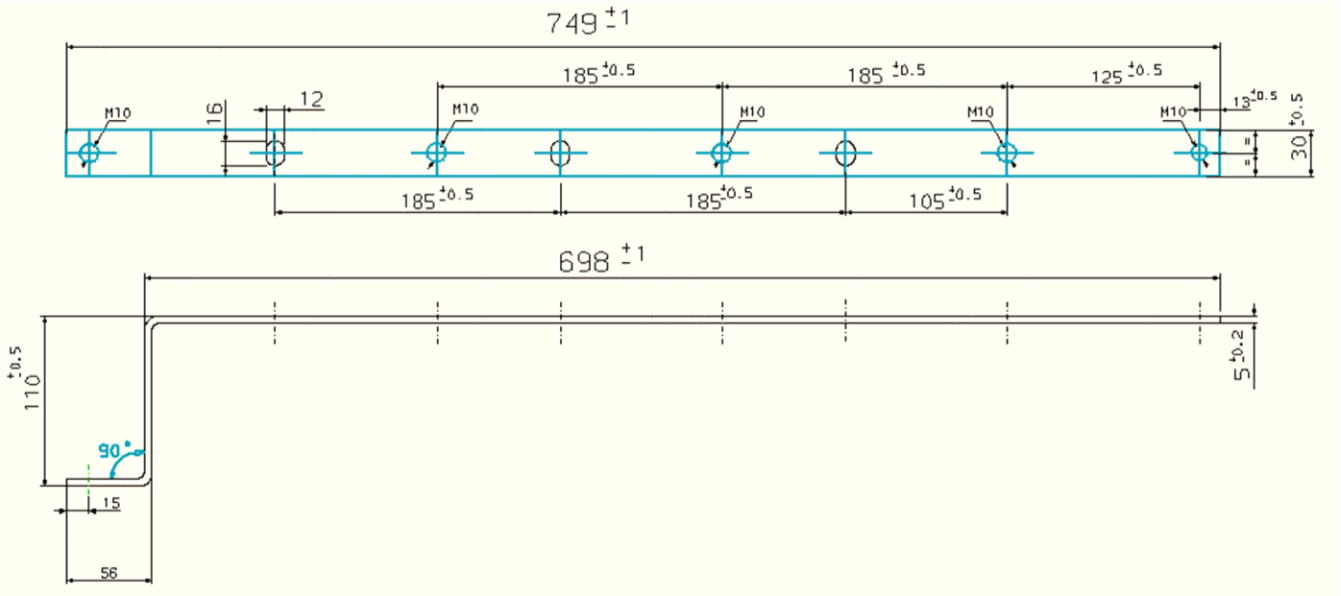
1. CMC for 6 meters.
2. Busbars for phase (3 pcs.).
3. Upper + Bottom busbars for neutral.
4. 40 mm insulators (6 pcs.) according to Appendix F.
5. 30 mm insulators (4 pcs.) according to Appendix F.
6. 35 mm DIN rail.
7. M6X12mm screw according DIN 933, with zinc coating + yellow/blue passivation (dichromate), coating thickness of min 6 micron (2 pcs.).
8. Conical spring washer for M6 screw according to DIN 6796, with zinc coating + yellow/blue passivation (dichromate), coating thickness of min 6 micron (2 pcs.).
9. Metallic support for insulators (2 pcs.).
10. Copper adaptor for fuse rail size "2" (3 pcs.).
11. M10X16mm screw according DIN 933, with zinc coating + yellow/blue passivation (dichromate), coating thickness of min 10 micron (6 pcs.).
12. Conical spring washer for M10 screw according DIN 6796, with zinc coating + yellow/blue passivation (dichromate), coating thickness of min 10 micron (6 pcs.).

General assembling for 6 meters without copper adaptor for fuserail (5253766):



1. CMC for 6 meters.
2. Busbars for phase (3 pcs.).
3. Upper + Bottom busbars for neutral.
4. 40 mm insulators (6 pcs.) according to Appendix F.
5. 30 mm insulators (4 pcs.) according to Appendix F.
6. 35 mm DIN rail.
7. M6X12mm screw according DIN 933, with zinc coating + yellow/blue passivation (dichromate), coating thickness of min 6 micron (2 pcs.).
8. Conical spring washer for M6 screw according DIN 6796, with zinc coating + yellow/blue passivation (dichromate), coating thickness of min 6 micron (2 pcs.).
9. Metallic support for insulators (2 pcs.).
10. M10X16mm screw according DIN 933, with zinc coating + yellow/blue passivation (dichromate), coating thickness of min 10 micron (6 pcs.).
11. Conical spring washer for M10 screw according DIN 6796, with zinc coating + yellow/blue passivation (dichromate), coating thickness of min 10 micron (6 pcs.).
12. Link between two neutral busbars (2 pcs.).

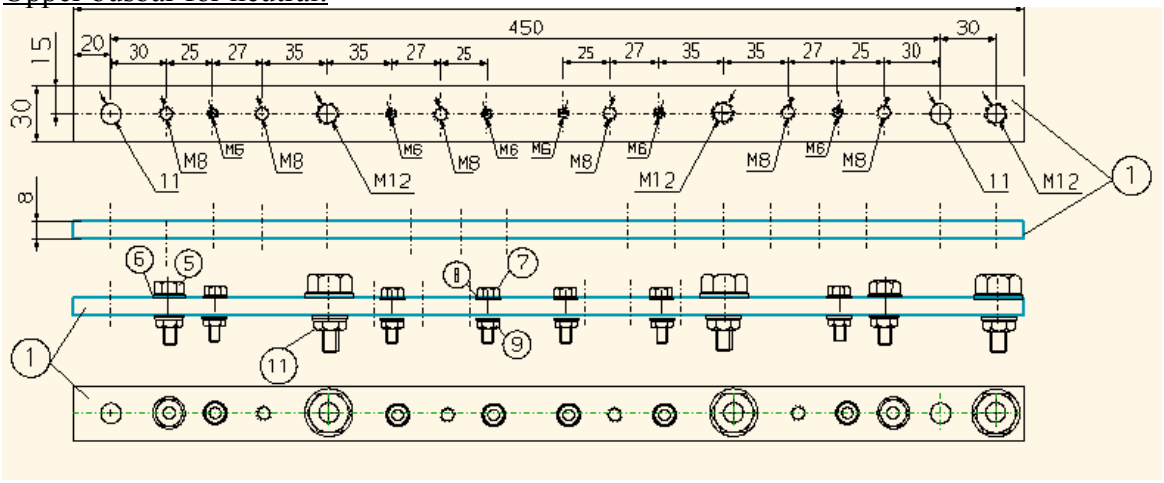
Metallic support for insulators:



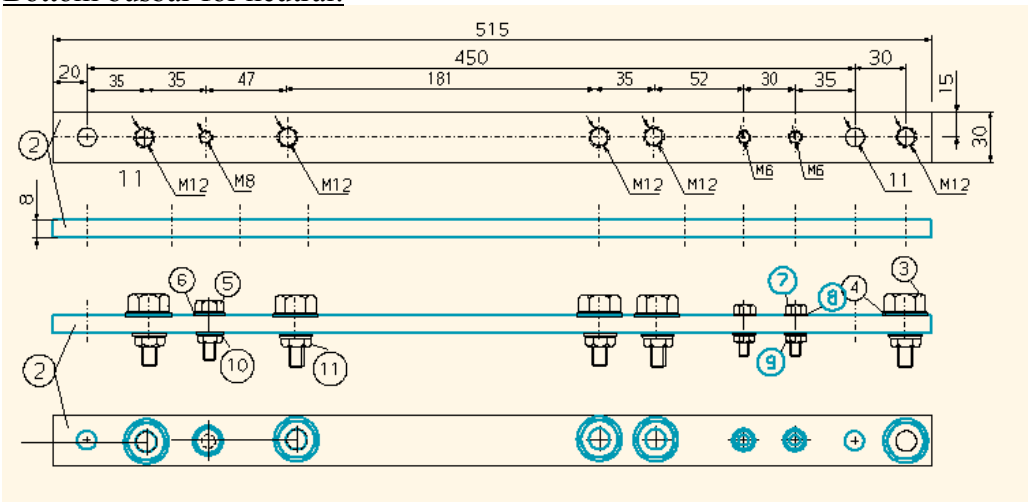
REMARKS:

- Material - ST-37, the part will be plated with zinc coating + yellow/blue passivation (dichromate), coating thickness of min 20 micron.
- All the sharp edges must be rounded in order not to injury the workers.

Upper busbar for neutral:



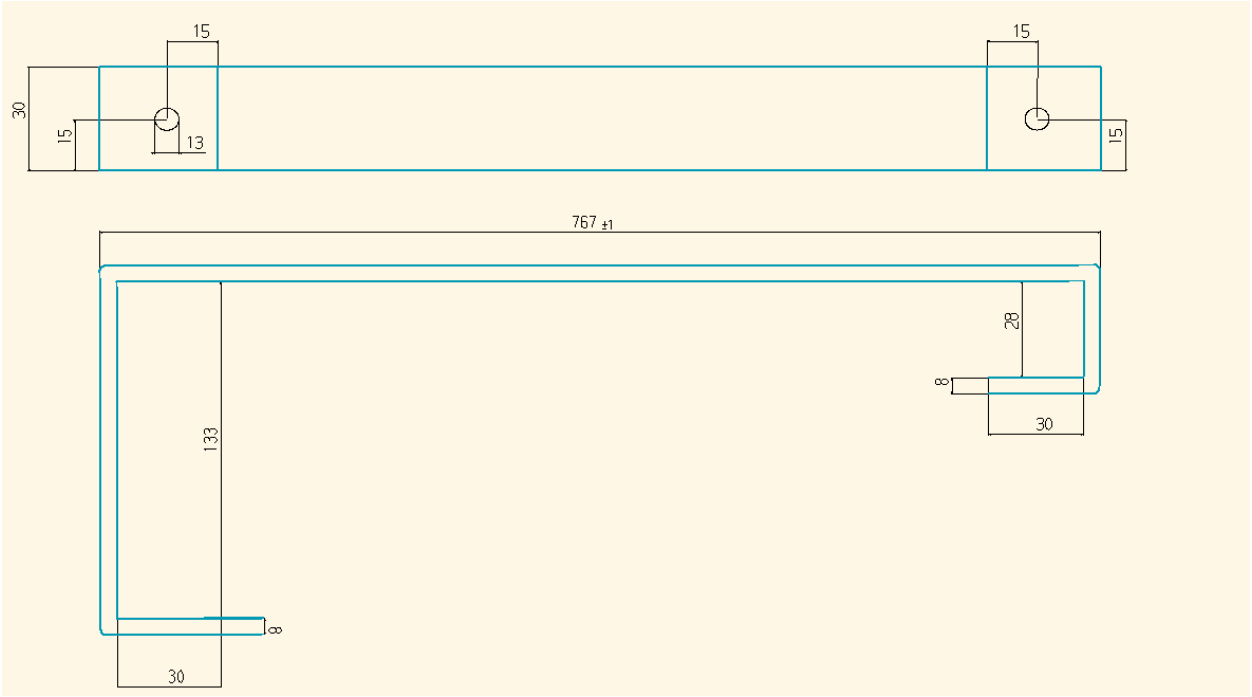
Bottom busbar for neutral:



1. Upper busbar for neutral E-Cu-F25 acc. DIN EN 13601 with coating thickness of min 20 micron – tin plated.
2. Bottom busbar for neutral E-Cu-F25 acc. DIN EN 13601 with coating thickness of min 20 micron – tin plated.
3. M12X40mm screw acc. DIN 933, coating thickness of min 12 micron (7 pcs.).
4. Conical spring washer for M12 screw acc. DIN 6796, coating thickness of min 12 micron (7 pcs.).
5. M8X35mm screw acc. DIN 933, coating thickness of min 8 micron (3 pcs.).
6. Conical spring washer for M8 screw according to DIN 6796, coating thickness of min 8 micron (3 pcs.).
7. M6X30mm screw according to DIN 933, coating thickness of min 6 micron (8 pcs.).
8. Conical spring washer for M6 screw according to DIN 6796, coating thickness of min 6 micron (8 pcs.).
9. M6 nuts + conical spring washer connected together , coating thickness of min 6 micron (8 pcs.).
10. M8 nuts + conical spring washer connected together , coating thickness of min 6 micron (3 pcs.).
11. M12 nuts + conical spring washer connected together , coating thickness of min 6 micron (7 pcs.).

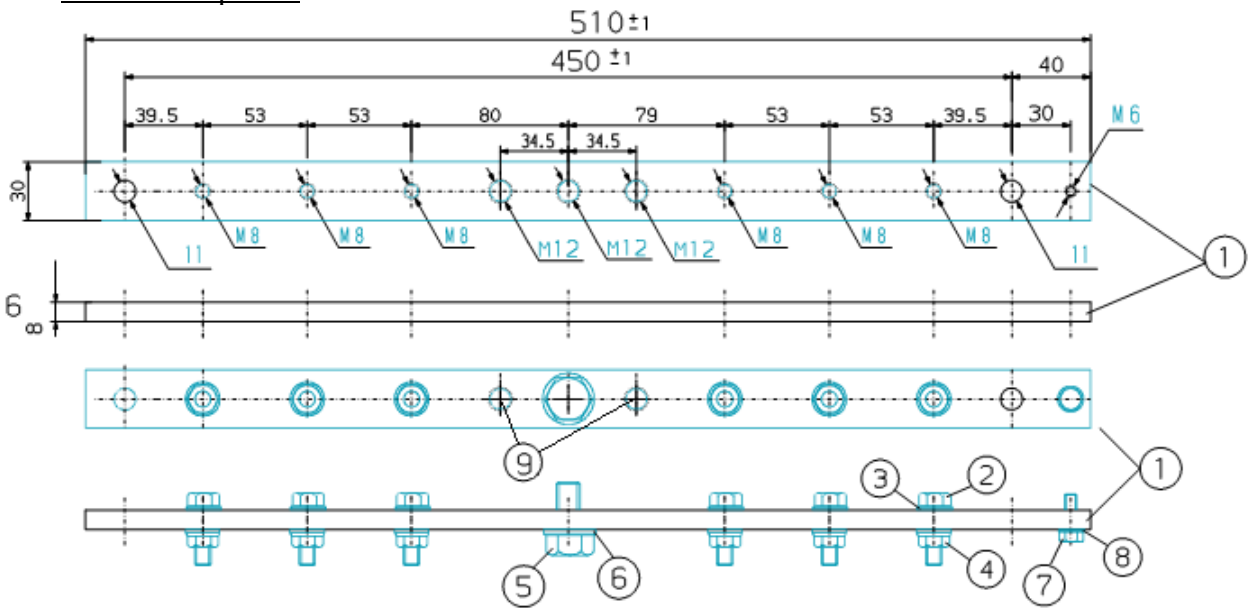
REMARK: All the screws, springs washer and nuts will plated with zinc coating + yellow/blue passivation (dichromate). The closing Torque of the screws and nuts of the busbar shall be According to Appendix H.

Link between two neutral busbars:



REMARK : E-Cu-F25 acc. DIN EN 13601 with coating thickness of min 20 micron – tin plated.

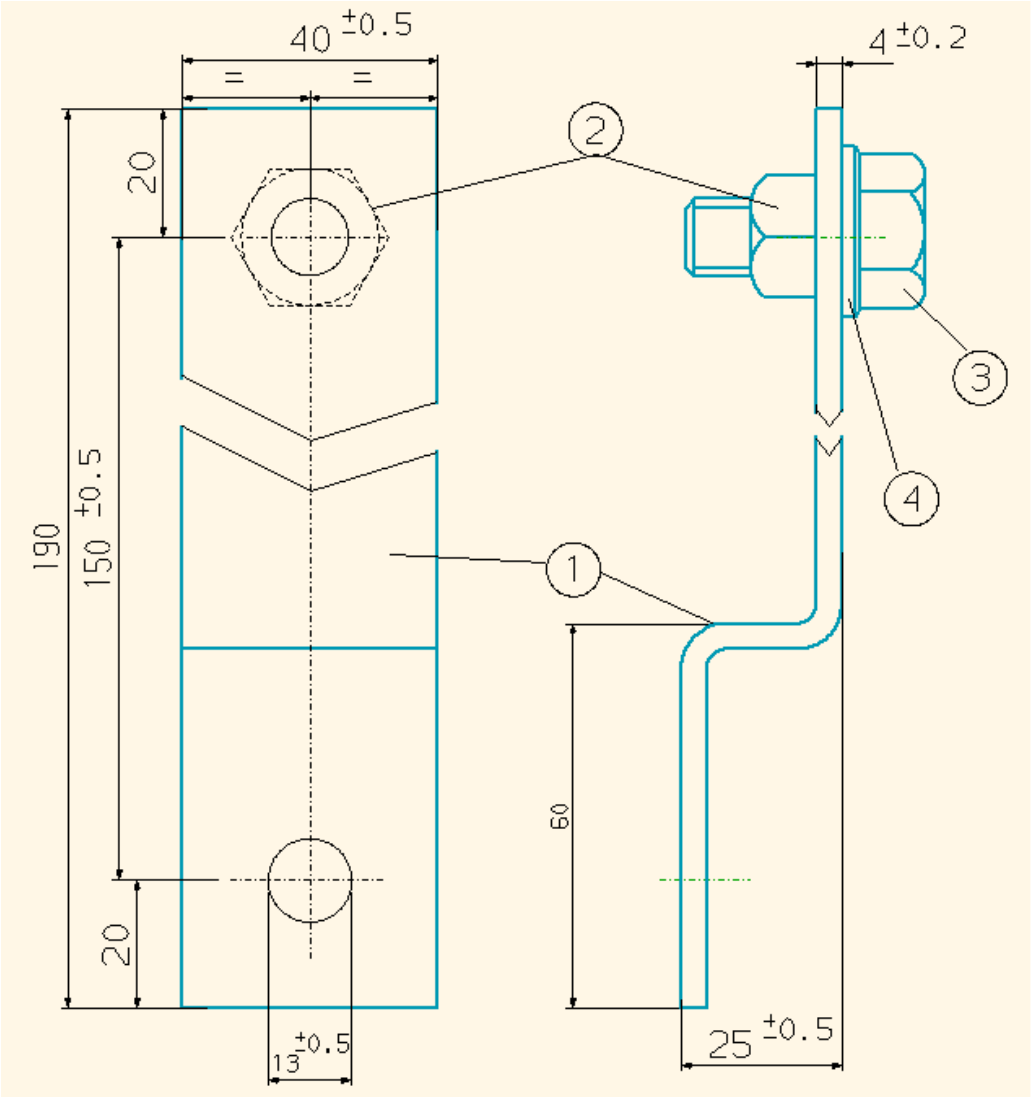
Busbars for phase:



1. Busbar for phase E-Cu-F25 acc. DIN EN 13601 with coating thickness of min 20 micron – tin plated.
2. M8X35mm screw acc. DIN 933, coating thickness of min 8 micron (6 pcs.).
3. Conical spring washer for M8 screw according DIN 6796, coating thickness of min 8 micron (6 pcs.).
4. M8 nuts + conical spring washer connected together , coating thickness of min 8 micron (6 pcs.).
5. M12X35mm screw acc. DIN 933, coating thickness of min 12 micron (1 pcs.)
6. Conical spring washer for M12 screw acc. DIN 6796, coating thickness of min 12 micron (1 pcs.).
7. M6X30mm screw according DIN 933, coating thickness of min 6 micron (1 pcs.).
8. Conical spring washer for M6 screw according DIN 6796, coating thickness of min 6 micron (1 pcs.).
9. Metal spacer as specified in clause 5.2.5 (2 pcs.)

REMARK: All the screws, springs washer and nuts will plated with zinc coating + yellow/blue passivation (dichromate). The closing Torque of the screws and nuts of the busbar shall be According to Appendix H.

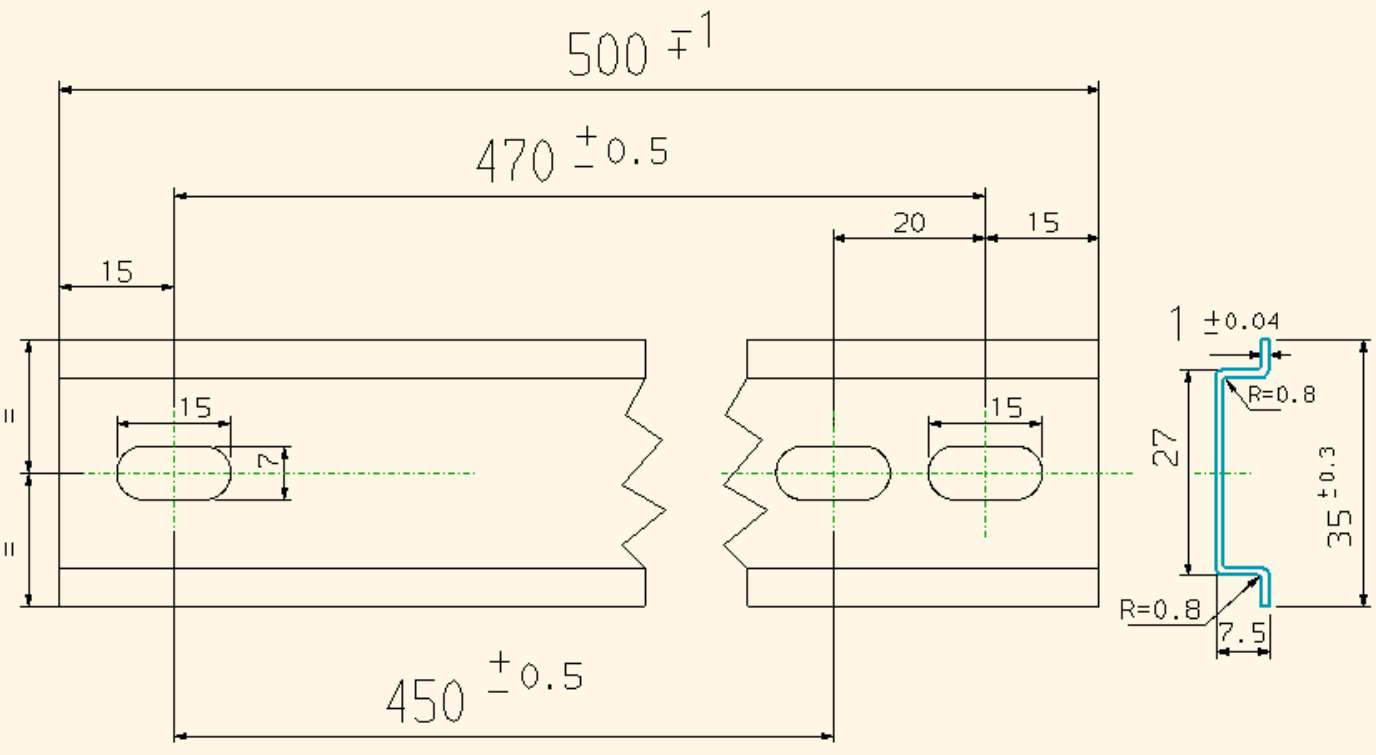
Copper adaptor for fuserail for 6 meters with copper adaptor for fuserail (896100):



1. Busbar E-Cu-F25 acc. DIN EN 13601 with coating thickness of min 20 micron – tin plated.
2. M12 inserted nut, coating thickness of min 8 micron (1 pcs.).
3. M12X40mm screw acc. DIN 933, coating thickness of min 12 micron (1 pcs.).
4. Conical spring washer for M12 screw acc. DIN 6796, coating thickness of min 12 micron (1 pcs.).

REMARK: All the screws, springs washer and nuts will plated with zinc coating + yellow/blue passivation (dichromate),

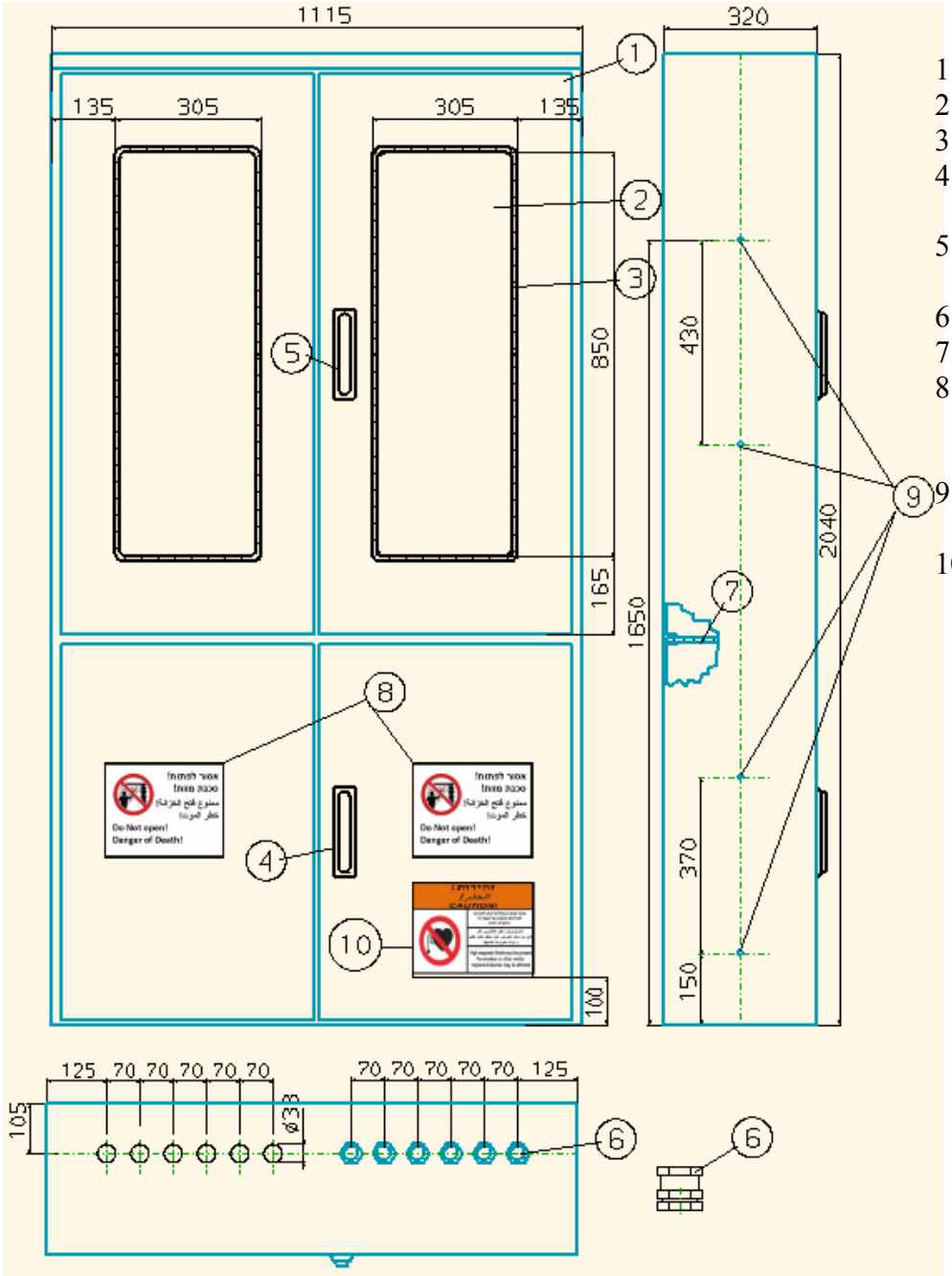
35 mm DIN rail



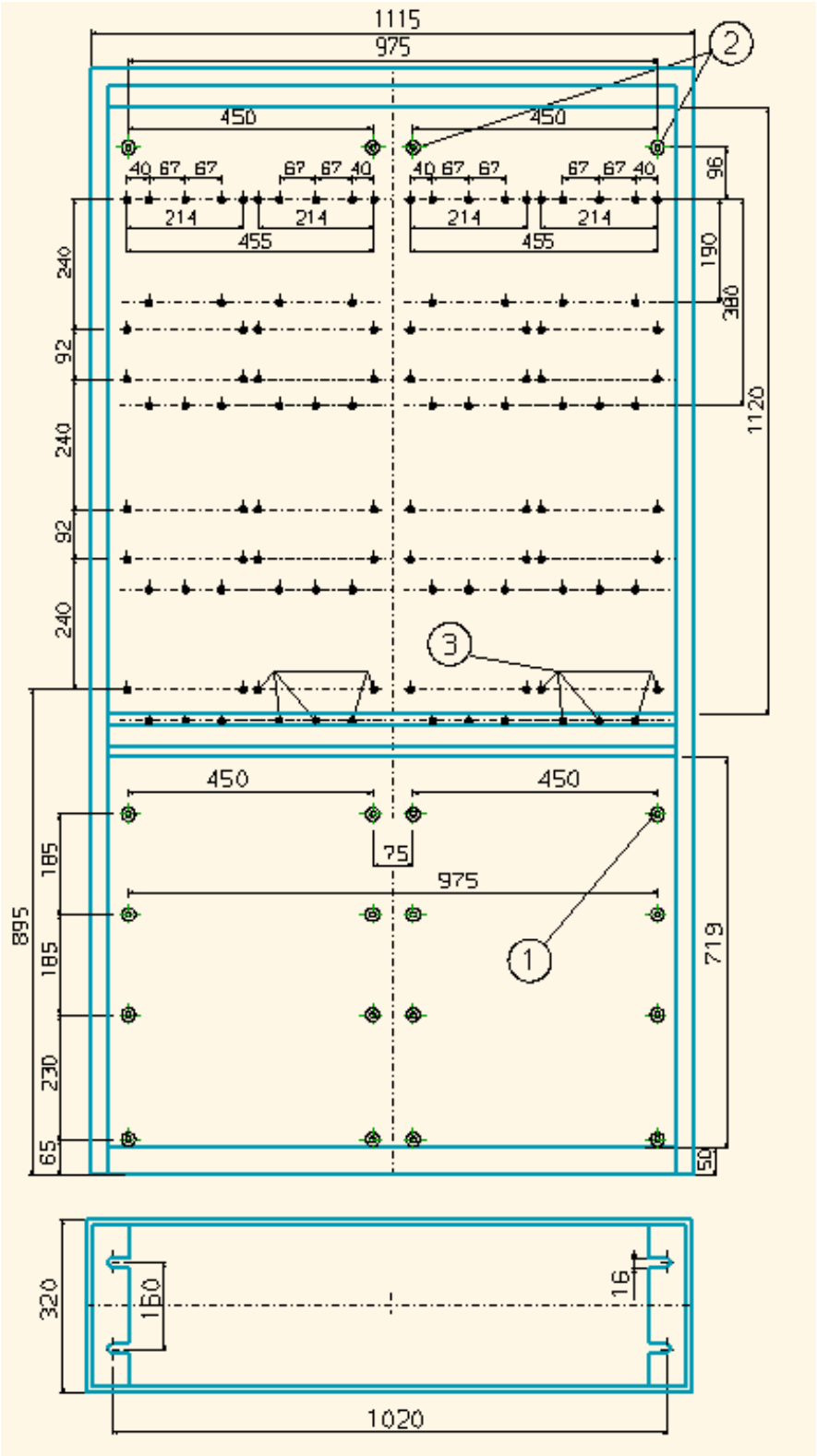
REMARKS:

- Material - SS-304, according to DIN 50022.
- All the sharp edges must be rounded in order not to injury the workers.

Sketch E.3 – Non equipped CMC for 12 meters (505578, 5253767):

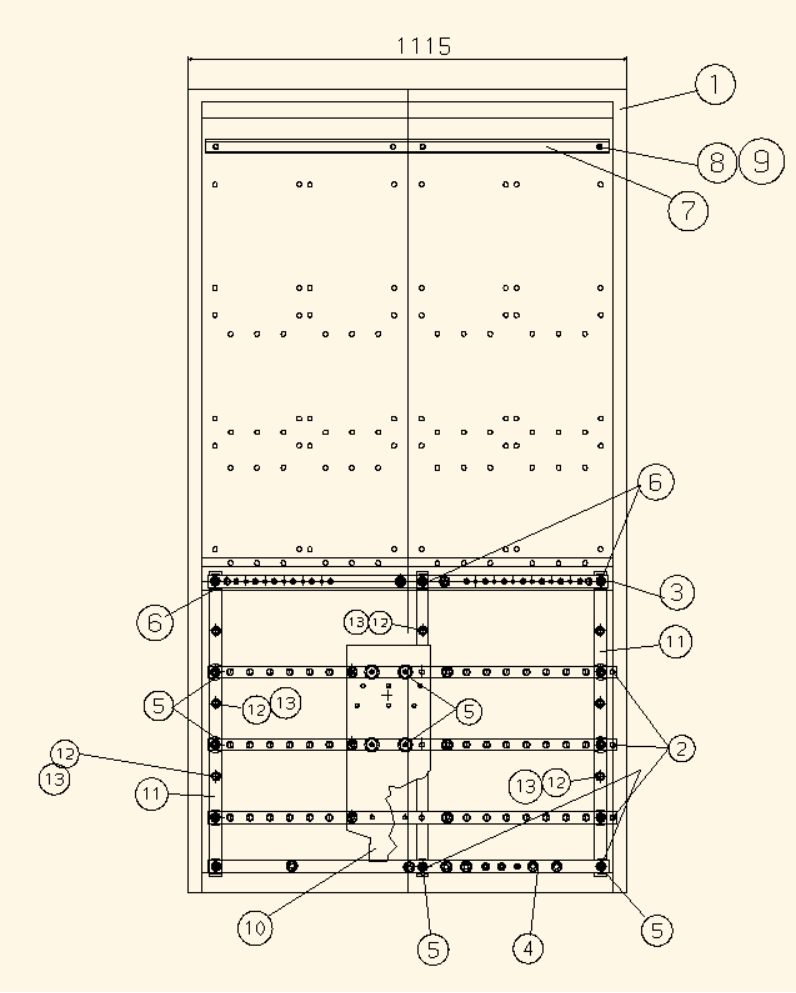


1. CMC for 12 meters.
2. Transparent window.
3. Frame for the window.
4. Semi cylinder lock – green.
5. Semi cylinder lock – white.
6. "PG29" cable glands.
7. Separation plate.
8. Warning sign (also inside the door - yellow) according to Appendix G.
9. M8 cold inserted nuts (in both sides).
10. Warning sign for medical equipment according to Appendix G.



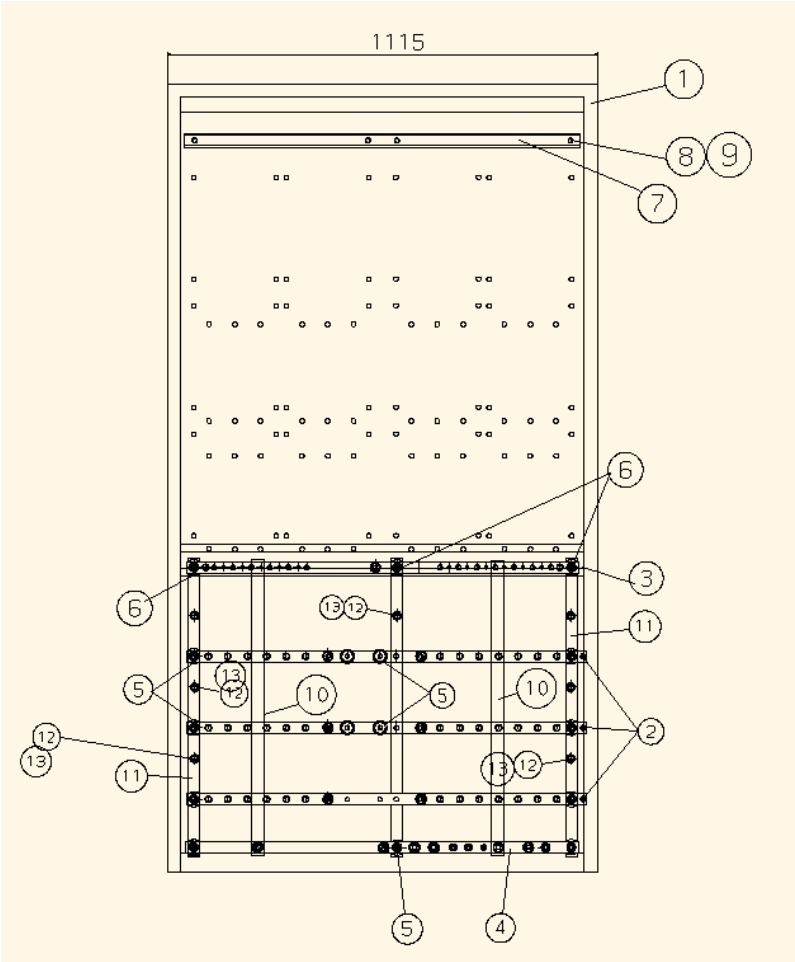
1. M10 hot pressed nuts.
2. M6 hot pressed nuts.
3. M5 cold inserted nuts.

General assembling for 12 meters with installation plate for L.V disconnector (505578):



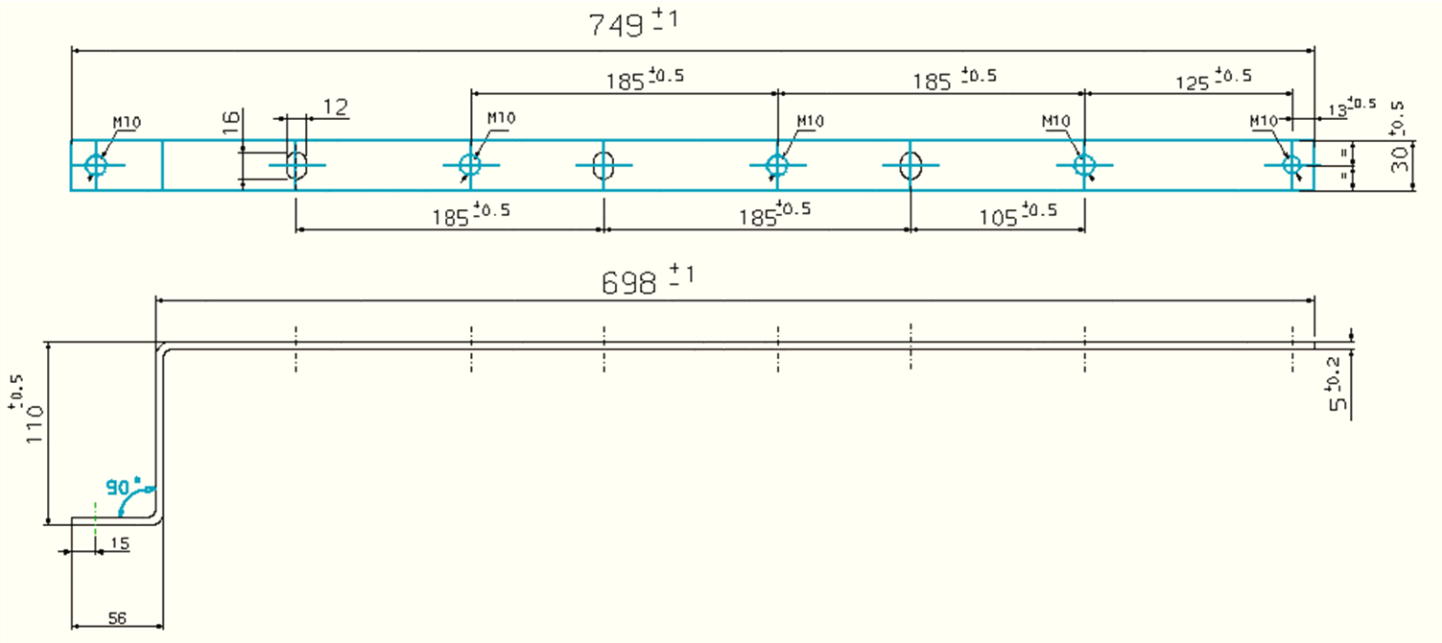
1. CMC for 12 meters.
2. Busbars for phase (3 pcs.).
3. Upper busbar for neutral.
4. Bottom busbar for neutral.
5. 40 mm insulators (14 pcs.) according to Appendix F.
6. 30 mm insulators (3 pcs.) according to Appendix F.
7. 35 mm DIN rail.
8. M6X12mm screw according DIN 933, with zinc coating + yellow/blue passivation (dichromate), coating thickness of min 6 micron (4 pcs.).
9. Conical spring washer for M6 screw according DIN 6796, with zinc coating + yellow/blue passivation (dichromate), coating thickness of min 6 micron (4 pcs.).
10. Installation plate for L.V disconnector.
11. Metallic support for insulators (3 pcs.).
12. M10X16mm screw according DIN 933, with zinc coating + yellow/blue passivation (dichromate), coating thickness of min 10 micron (9 pcs.).
13. Conical spring washer for M10 screw according DIN 6796, with zinc coating + yellow/blue passivation (dichromate), coating thickness of min 10 micron (9 pcs.).

General assembling for 12 meters without installation plate for L.V disconnector (5253767):



1. CMC for 12 meters.
2. Busbars for phase (3 pcs.).
3. Upper busbar for neutral.
4. Bottom busbar for neutral.
5. 40 mm insulators (10 pcs.) according to Appendix F.
6. 30 mm insulators (3 pcs.) according to Appendix F.
7. 35 mm DIN rail.
8. M6X12mm screw according to DIN 933, with zinc coating + yellow/blue passivation (dichromate), coating thickness of min 6 micron (4 pcs.).
9. Conical spring washer for M6 screw according to DIN 6796, with zinc coating + yellow/blue passivation (dichromate), coating thickness of min 6 micron (4 pcs.).
10. Link between two neutral busbars
11. Metallic support for insulators (3 pcs.).
12. M10X16mm screw according to DIN 933, with zinc coating + yellow/blue passivation (dichromate), coating thickness of min 10 micron (9 pcs.).
13. Conical spring washer for M10 screw according to DIN 6796, with zinc coating + yellow/blue passivation (dichromate), coating thickness of min 10 micron (9 pcs.).

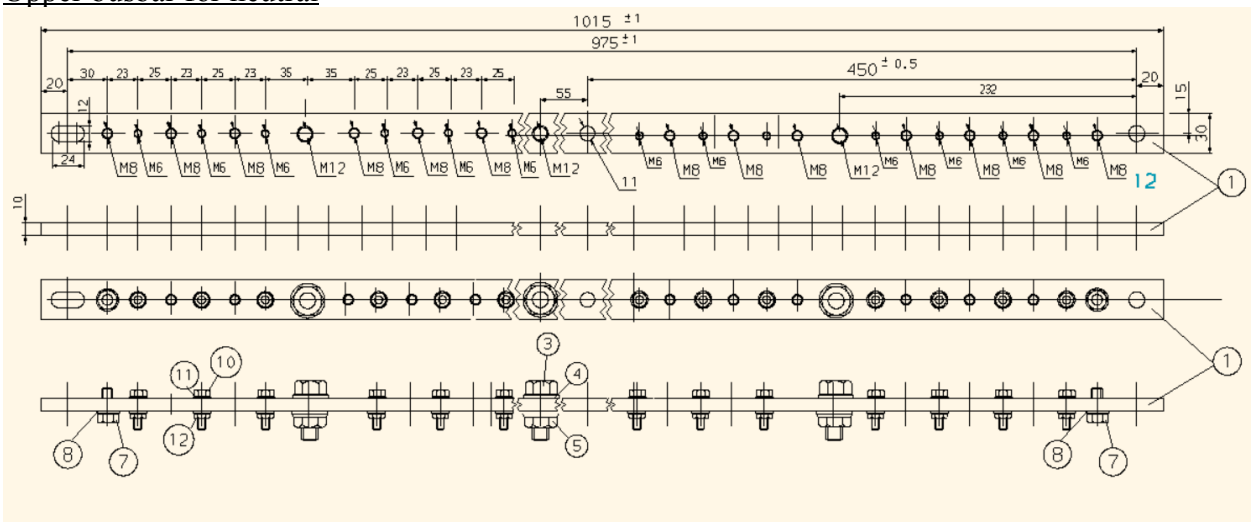
Metallic support for insulators:



REMARKS:

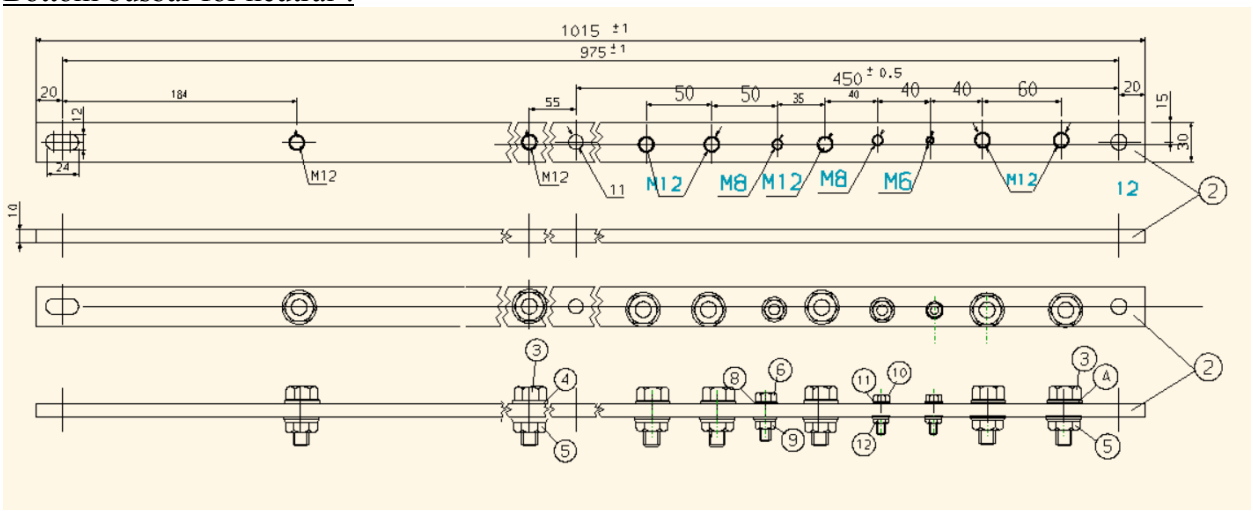
- Material - ST-37, the part will be plated with zinc coating + yellow/blue passivation (dichromate), coating thickness of min 20 micron.
- All the sharp edges must be rounded in order not to injury the workers.

Upper busbar for neutral



.

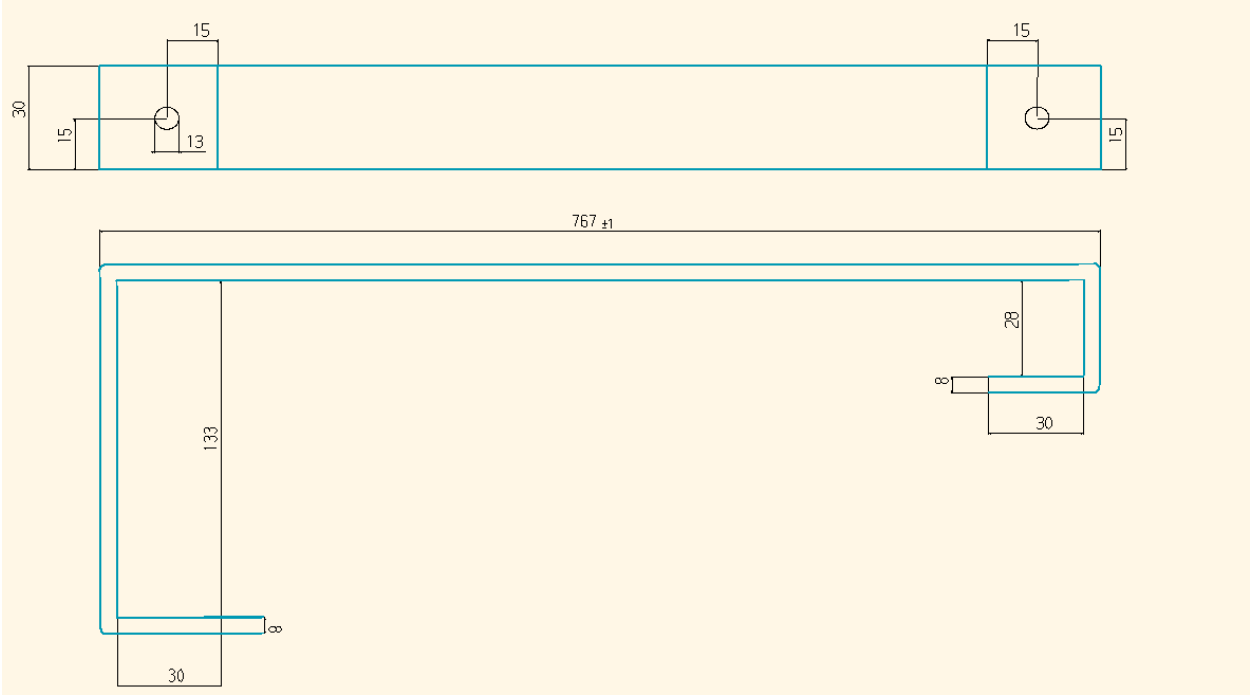
Bottom busbar for neutral-:



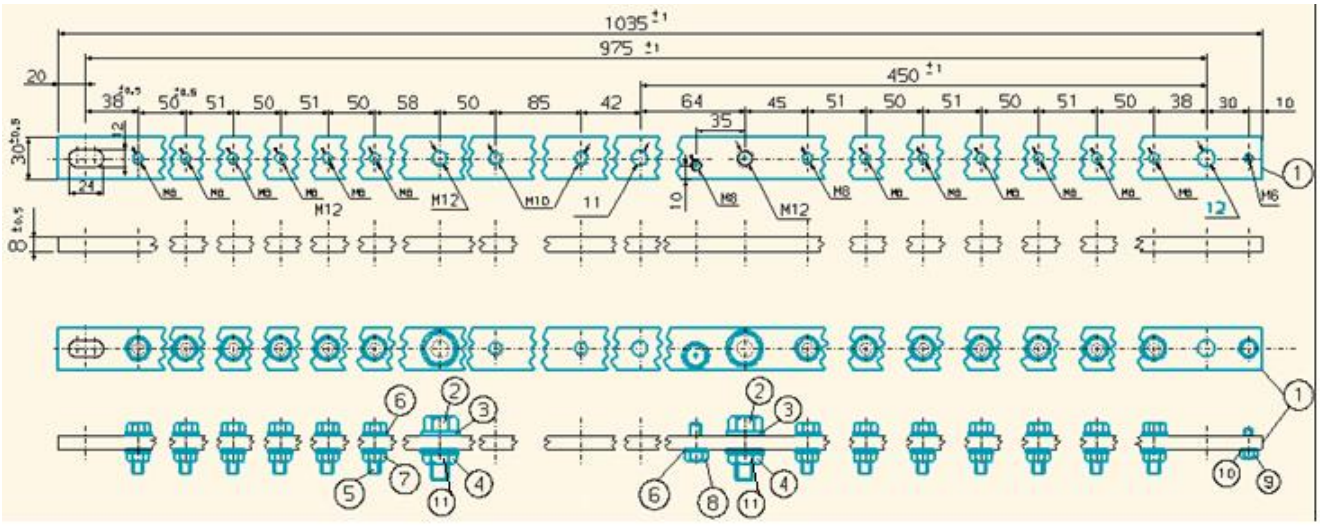
1. Upper busbar for neutral E-Cu-F25 acc. DIN EN 13601 with coating thickness of min 20 micron – tin plated.
2. Bottom busbar for neutral E-Cu-F25 acc. DIN EN 13601 with coating thickness of min 20 micron – tin plated.
3. M12X35mm screw acc. DIN 933, coating thickness of min 12 micron (7 pcs.).
4. Conical spring washer for M12 screw acc. DIN 6796, coating thickness of min 12 micron (7 pcs.).
5. M12 nuts + conical spring washer connected together , coating thickness of min 12 micron (7 pcs.).
6. M8X35mm screw acc. DIN 933, coating thickness of min 8 micron (2 pcs.).
7. M8X35mm screw acc. DIN 933, coating thickness of min 8 micron (2 pcs.).
8. Conical spring washer for M8 screw according to DIN 6796, coating thickness of min 8 micron (4 pcs.).
9. M8 nuts + conical spring washer connected together , coating thickness of min 8 micron (2 pcs.).
10. M6X30mm screw according to DIN 933, coating thickness of min 6 micron (14 pcs.).
11. Conical spring washer for M6 screw according to DIN 6796, coating thickness of min 6 micron (14 pcs.).
12. M6 nuts + conical spring washer connected together , coating thickness of min 6 micron (14 pcs.).

REMARK: All the screws, springs washer and nuts will be plated with zinc coating + yellow/blue passivation (dichromate). The closing Torque of the screws and nuts of the busbar shall be According to Appendix H.

Link between two neutral busbars:



REMARK : E-Cu-F25 acc. DIN EN 13601 with coating thickness of min 20 micron – tin plated.

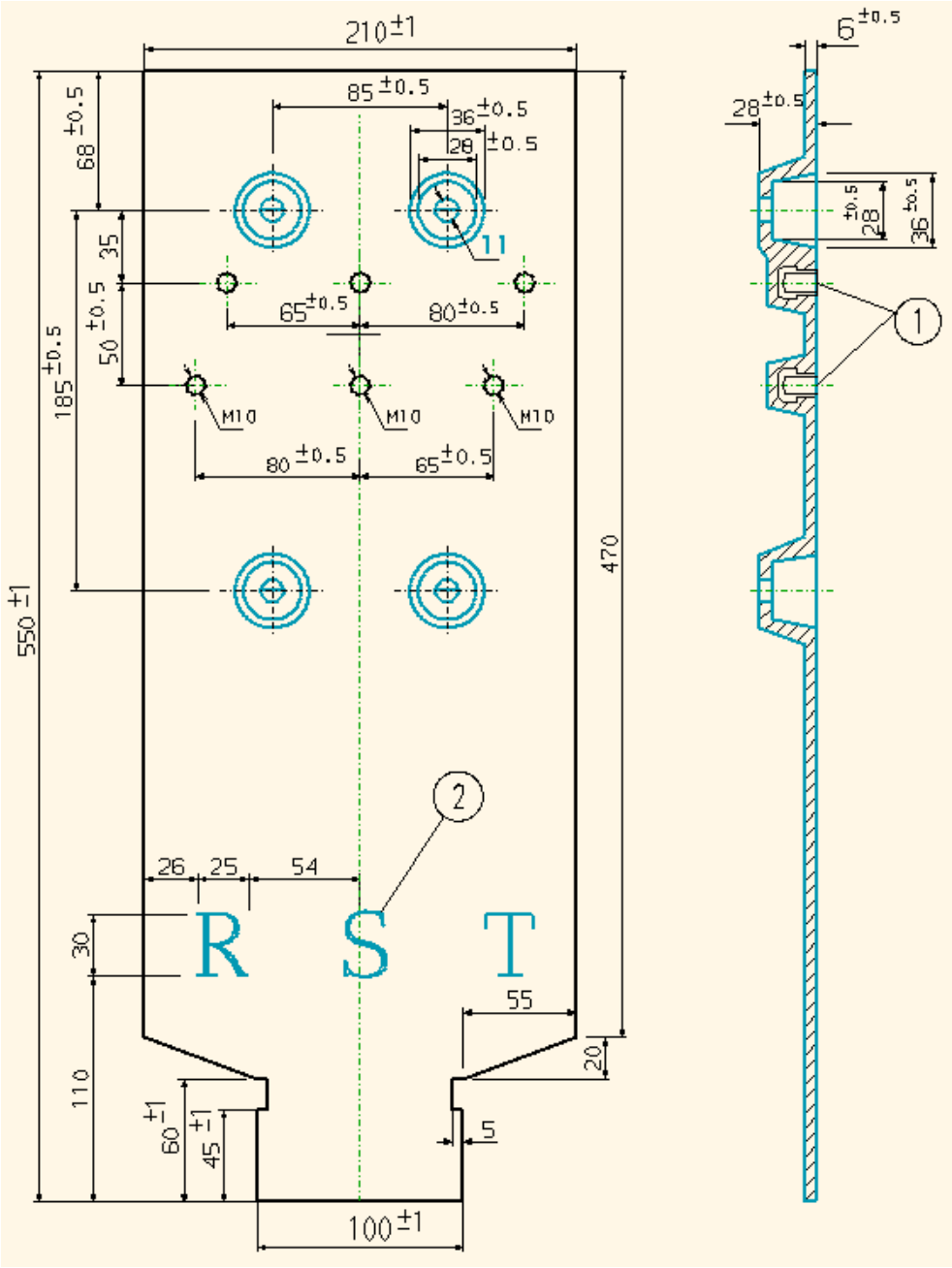


Busbars for phase:

1. Busbar for phase E-Cu-F25 acc. DIN EN 13601 with coating thickness of min 20 micron – tin plated.
2. M12X35mm screw acc. DIN 933, coating thickness of min 12 micron (2 pcs.)
3. Conical spring washer for M12 screw acc. DIN 6796, coating thickness of min 12 micron (2 pcs.).
4. M12 nuts + conical spring washer connected together , coating thickness of min 12 micron (2 pcs.).
5. M8X35mm screw acc. DIN 933, coating thickness of min 8 micron (13 pcs.).
6. Conical spring washer for M8 screw according to DIN 6796, coating thickness of min 8 micron (14 pcs.).
7. M8 nuts + conical spring washer connected together , coating thickness of min 8 micron (13 pcs.).
8. M8X35mm screw acc. DIN 933, coating thickness of min 8 micron (1 pcs.).
9. M6X30mm screw according to DIN 933, coating thickness of min 6 micron (1 pcs.).
10. Conical spring washer for M6 screw according to DIN 6796, coating thickness of min 6 micron (1 pcs.).
11. Metal spacer as specified in clause 5.2.5 (2 pcs.)

REMARK: All the screws, springs washer and nuts will be plated with zinc coating + yellow/blue passivation (dichromate). The closing Torque of the screws and nuts of the busbar shall be According to Appendix H.

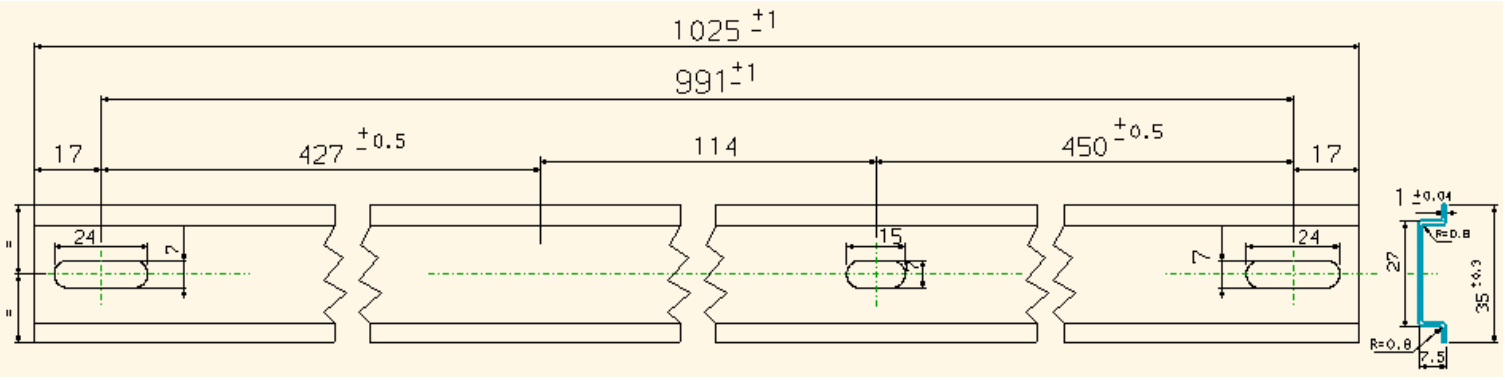
Installation plate for L.V disconnector for 12 meters with installation plate for L.V disconnector (505578):



1. M10 inserted nuts – torque 38Nm
2. Red letters.

Remark: Material – Polyester according to the requirements of this specification.

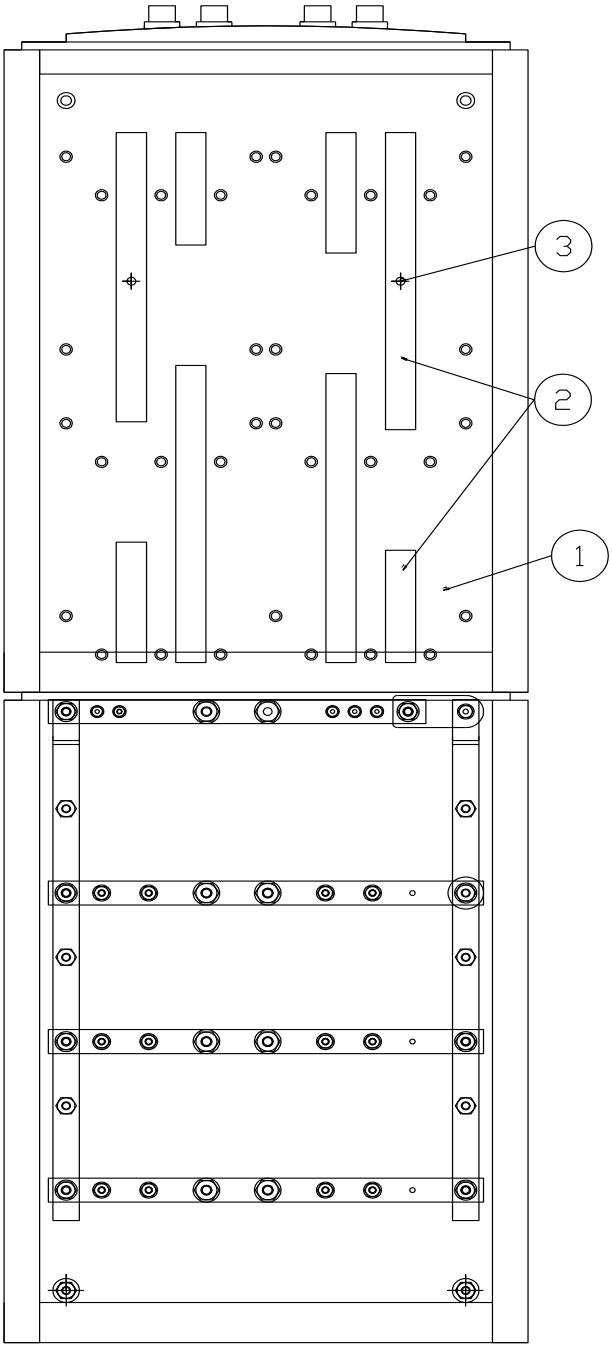
35 mm DIN rail:



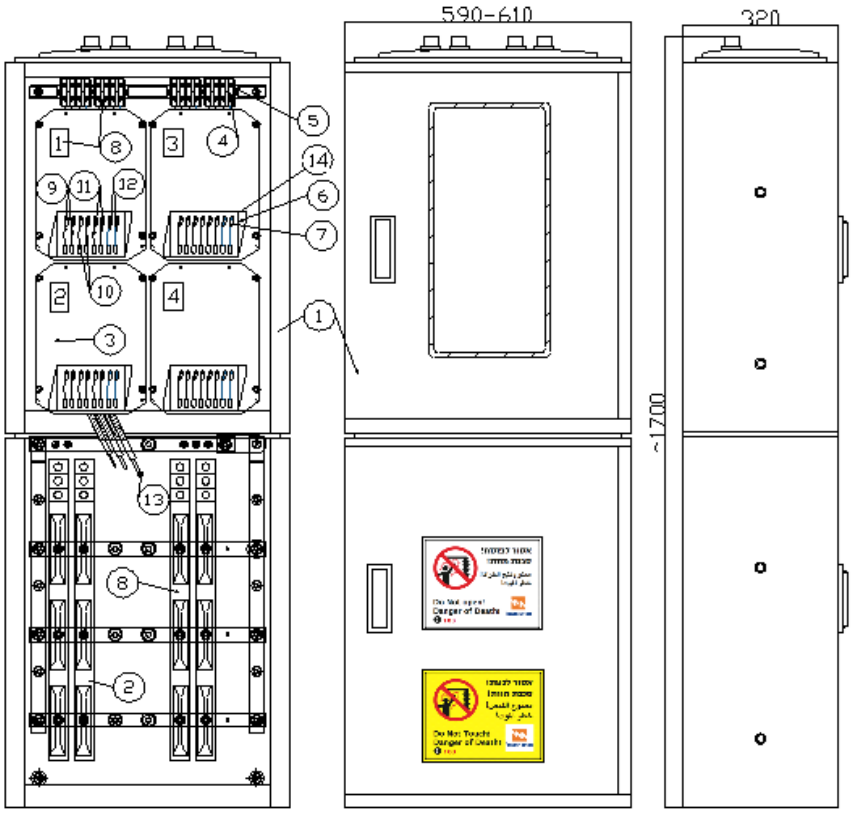
REMARKS:

- Material - SS-304, according to DIN 50022.
- All the sharp edges must be rounded in order not to injury the workers.

Sketch E.4 – Equipped CMC for 4 meters (5290381):



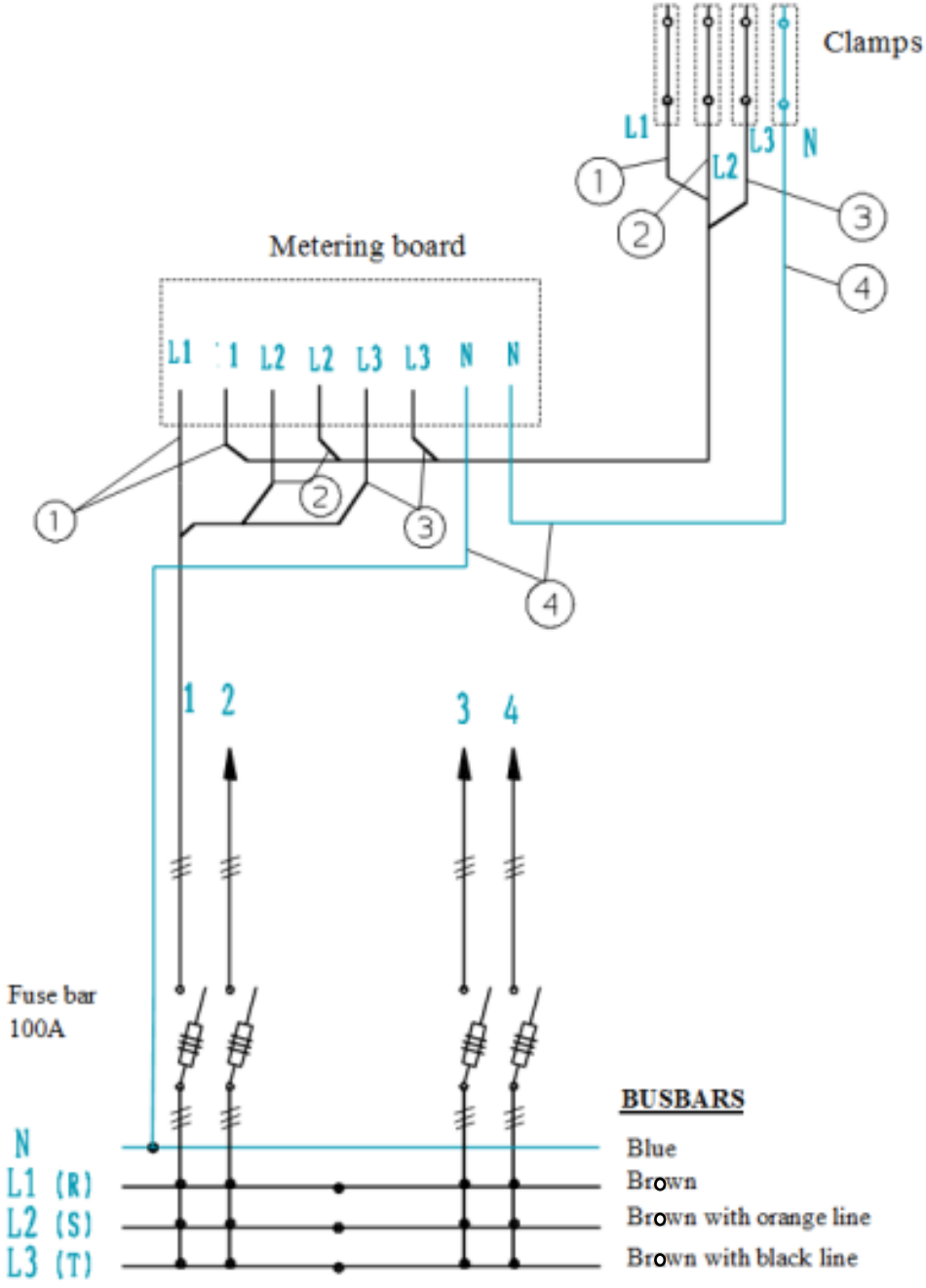
1. Central metering cabinet for 4 meters – Cat No. 5289546.
2. Plastic channel width 30 mm depth 25 mm (4 m).
3. M5X10 screw with philips sunk head – steel according to DIN 965 (16 pcs).



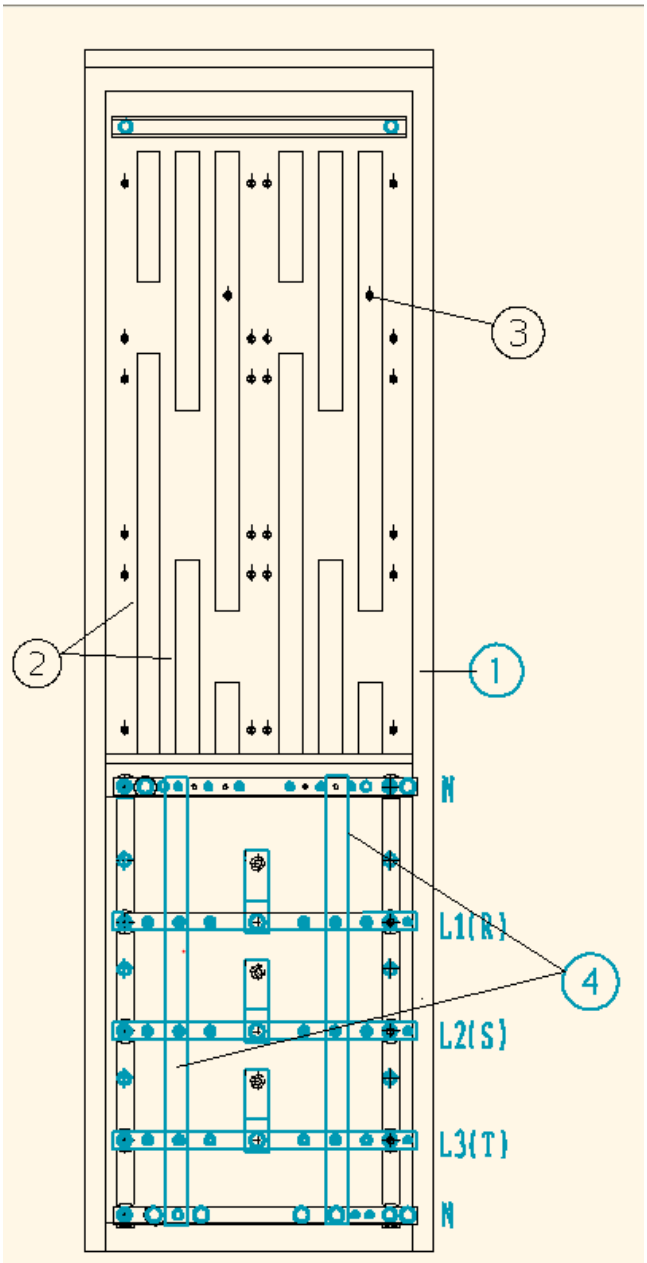
1. Central metering cabinet for 4 metering – Cat No. 5289546.
2. Fuse rail size "00" – See appendix F.8 (4 pcs).
3. Meter's board – See appendix F.10 (4 pcs).
4. $16mm^2$ clamp for copper wire with sides cover – see Appendix F.2 (16 pcs).
5. Final closure of the $16mm^2$ clamp (6 pcs).
6. Clear plastic cover (4 pcs).
7. Cover for wire – see Appendix F.3 (32 pcs).
8. Paper sticker with numbers for meter's boards, switches and fuse rail (12 pcs).
9. H07V-R $10mm^2$ sheathless cable – brown – according to SI 60227 (7 m).
10. H07V-R $10mm^2$ sheathless cable – brown-orange – according to SI 60227 (7 m).
11. H07V-R $10mm^2$ sheathless cable – brown-black – according to SI 60227 (7 m).
12. H07V-R $10mm^2$ sheathless cable – blue – according to SI 60227 (7 m).
13. Copper cable lugs M8 10 sq. mm (4 pcs).
14. End sleeve for copper wire $10mm^2$ (32 pcs).

Wiring diagram

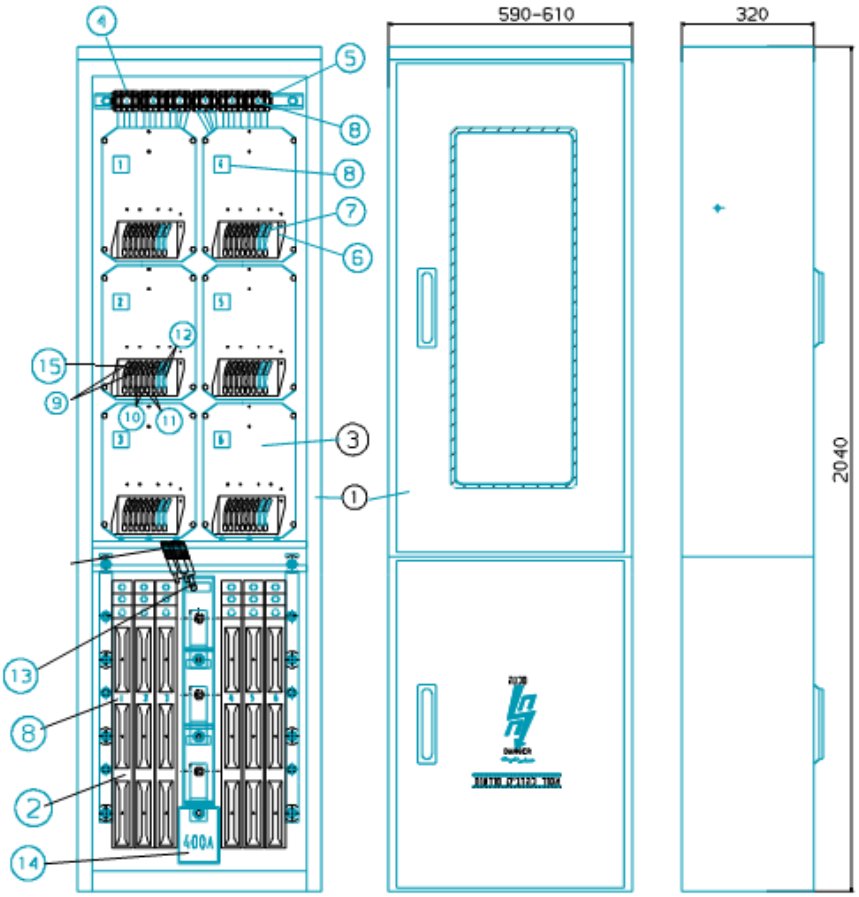
1. Brown.
2. Brown-orange.
3. Brown-black.
4. Blue.



Sketch E.5 – Equipped CMC for 6 meters with disconnector (505586):



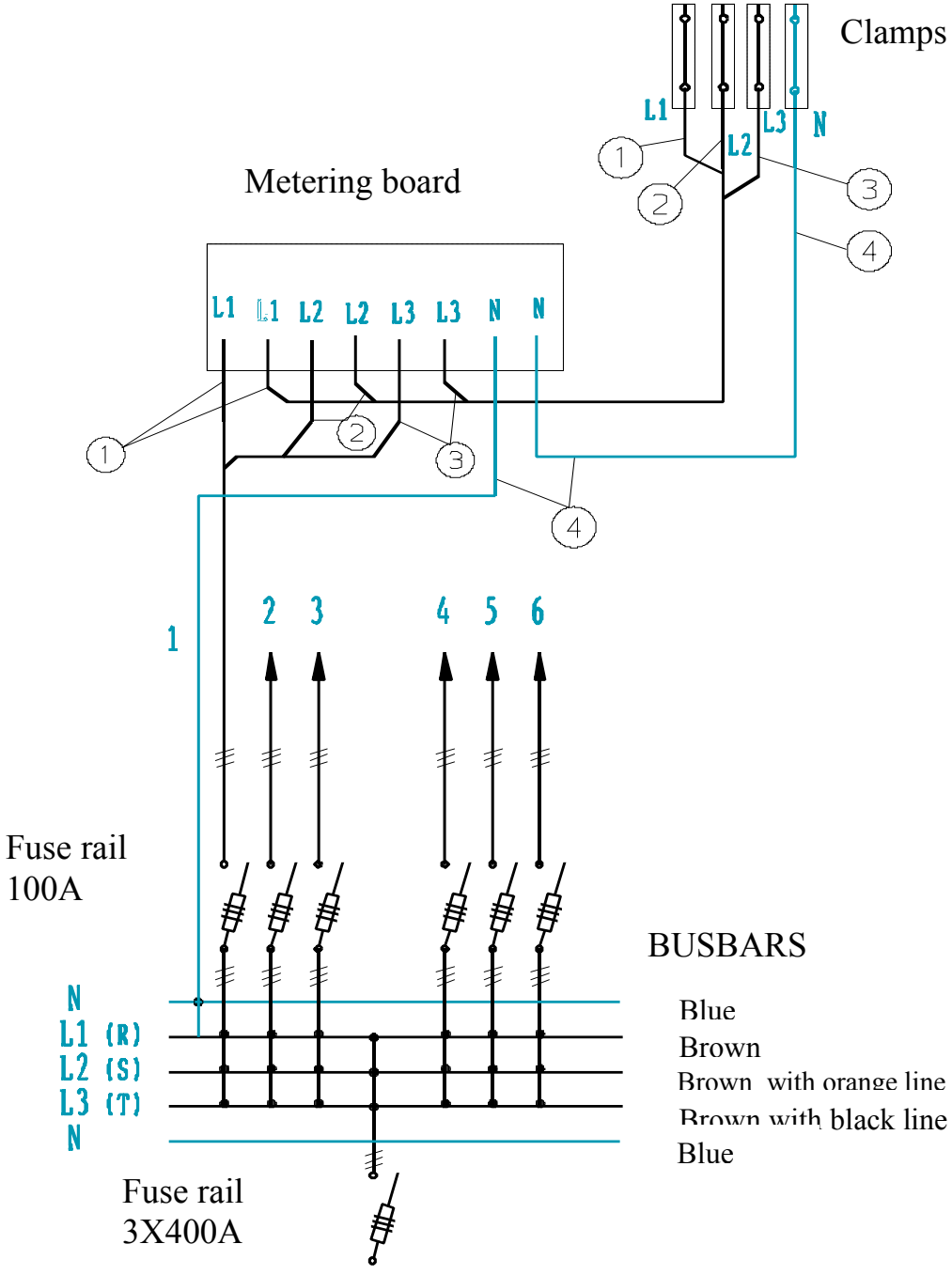
1. Central metering cabinet for 6 metering (unequipped) – Cat No. 896100.
2. Plastic channel width 30 mm depth 25 mm (6 m).
3. M5X10 screw with Philips sunk head – steel according to DIN 965 (28 pcs).
4. Link between two neutral busbars.



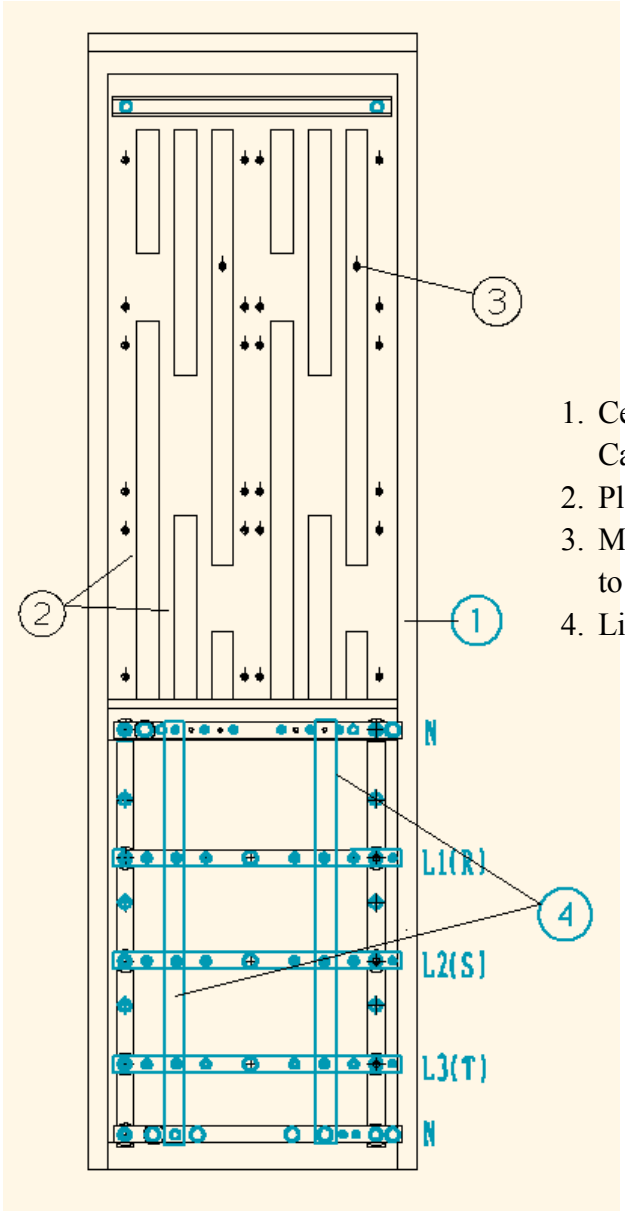
1. Central metering cabinet for 6 metering.
2. Fuse rail size "00" – See appendix F.8 (6 pcs).
3. Meter's board – See appendix F.10 (6 pcs).
4. 16 mm^2 din rail clamp for copper wire With Sides cover – see Appendix F.2 (24 pcs).
5. Final closure of the 16mm^2 clamp (7 pcs).
6. Clear plastic cover – see Appendix F.4 (6 pcs).
7. Cover for wire – see Appendix F.3 (48 pcs).
8. Paper sticker with no. for meter's boards, switches and fuse rail (18 pcs).
9. Copper wire 10 sq. mm – brown – according to SI 60227 (11 meter).
10. Copper wire 10 sq. mm – brown-orange – according to SI 60227 (11 meter).
11. Copper wire 10 sq. mm – brown-black – according to SI 60227 (11 meter).
12. Copper wire 10 sq. mm – blue – according to SI 60227 (11 meter).
13. Copper cable lugs 10mm^2 – M6 – see Appendix F.1 (6 pcs.).
14. Fuse rail size 2 – See appendix F.8 (1 pcs).
15. End sleeve for copper wire 10mm^2 (48 pcs).

Wiring diagram

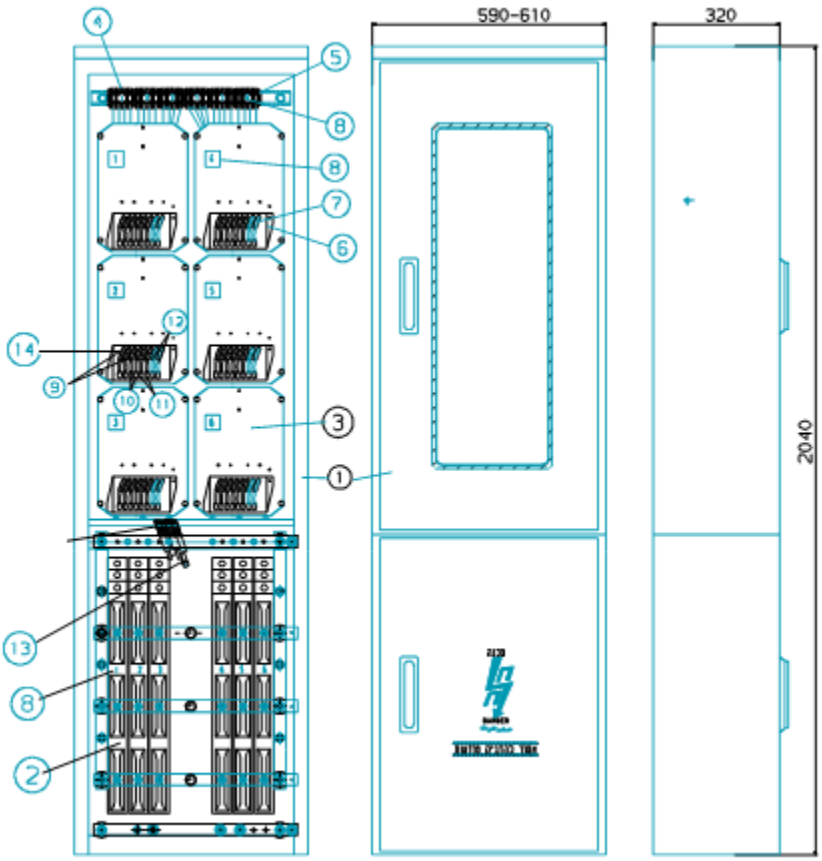
1. Brown.
2. Brown-orange.
3. Brown-black.
4. Blue.



Sketch E.6 – Equipped CMC for 6 meters without disconnector (5016728):



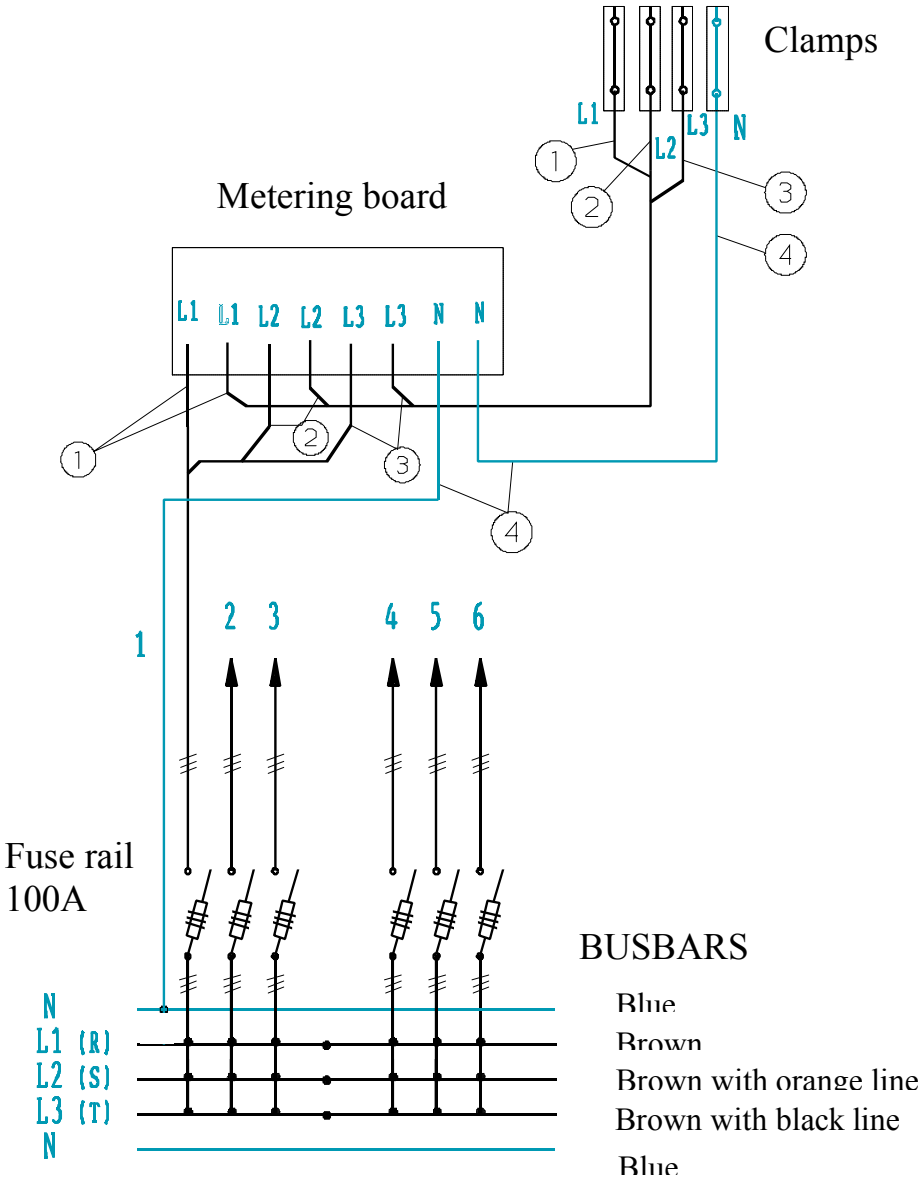
1. Central metering cabinet for 6 metering (unequipped) – Cat No. 5253766.
2. Plastic channel width 30 mm depth 25 mm (6 m).
3. M5X10 screw with Philips sunk head – steel according to DIN 965 (28 pcs).
4. Link between two neutral busbars (2 pcs.).



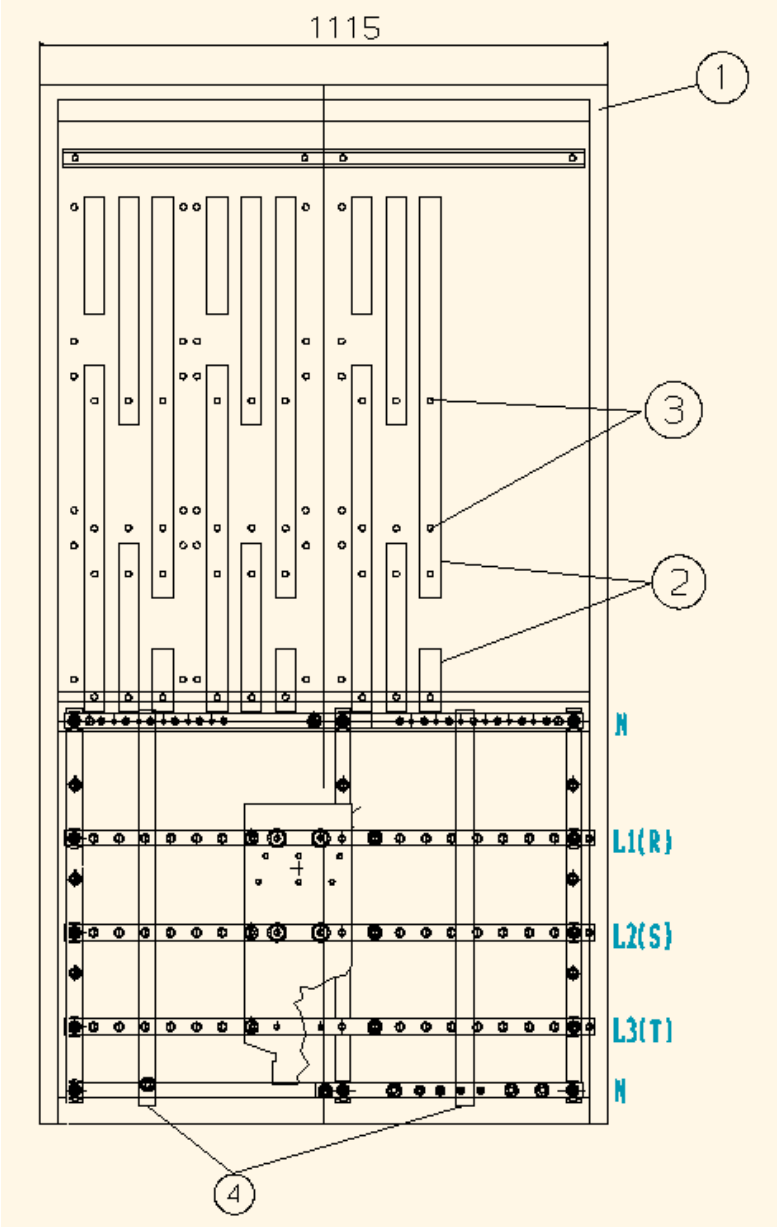
1. Central metering cabinet for 6 metering.
2. Fuse rail size "00" – See appendix F.8 (6 pcs).
3. Meter's board – See appendix F.10 (6 pcs).
4. $16mm^2$ din rail clamp for copper wire With Sides cover – see Appendix F.2 (24 pcs).
5. Final closure of the $16mm^2$ clamp (7 pcs).
6. Clear plastic cover – see Appendix F.4 (6 pcs).
7. Cover for wire – see Appendix F.3 (48 pcs).
8. Paper sticker with no. for meter's boards, switches and fuse rail (18 pcs).
9. H07V-R $10mm^2$ sheathless cable – brown – according to SI 60227 (11 meter).
10. H07V-R $10mm^2$sheathless cable – brown-orange – according to SI 60227 (11 meter).
11. H07V-R $10mm^2$sheathless cable – brown-black – according to SI 60227 (11 meter).
12. H07V-R $10mm^2$sheathless cable – blue – according to SI 60227 (11 meter).
13. Copper cable lugs $10mm^2$ – see Appendix F.1 (6 pcs).
14. End sleeve for copper wire $10mm^2$ (48 pcs).

Wiring diagram

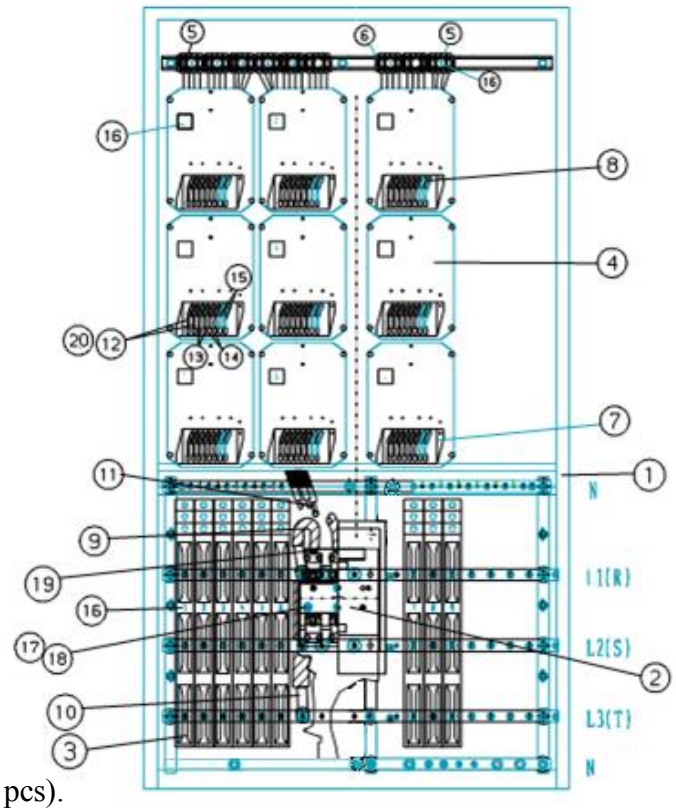
1. Brown.
2. Brown-orange.
3. Brown-black.
4. Blue.



Sketch E.7 – Equipped CMC for 9 metering with disconnector (505552):



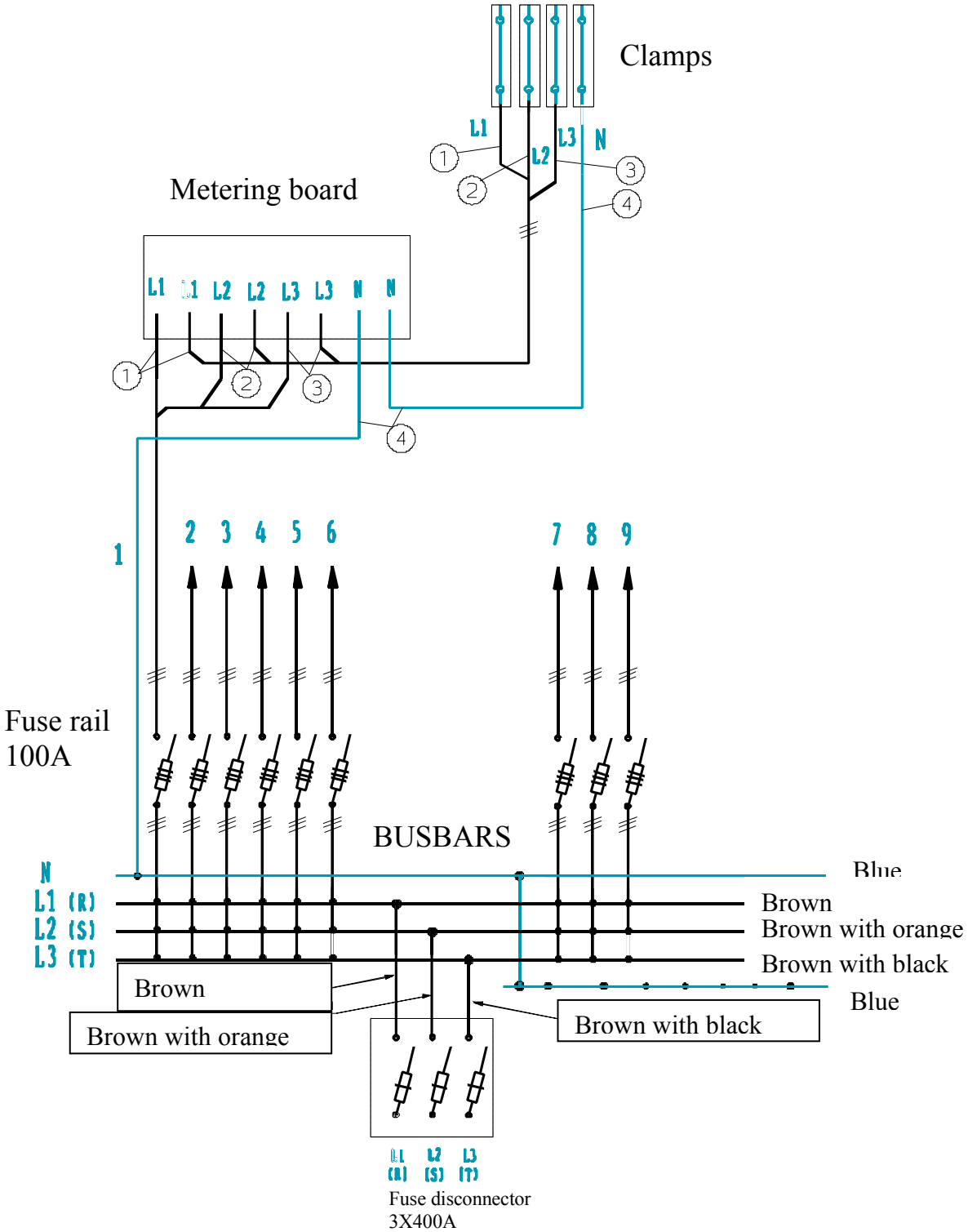
1. Central metering cabinet for 9/12 metering (unequipped) – Cat No. 505578.
2. Plastic channel width 30 mm depth 25 mm (11 m).
3. M5X10 screw with Philips sunk head – steel according to DIN 965 (42 pcs).
4. Link between two neutral busbars (2pcs.).



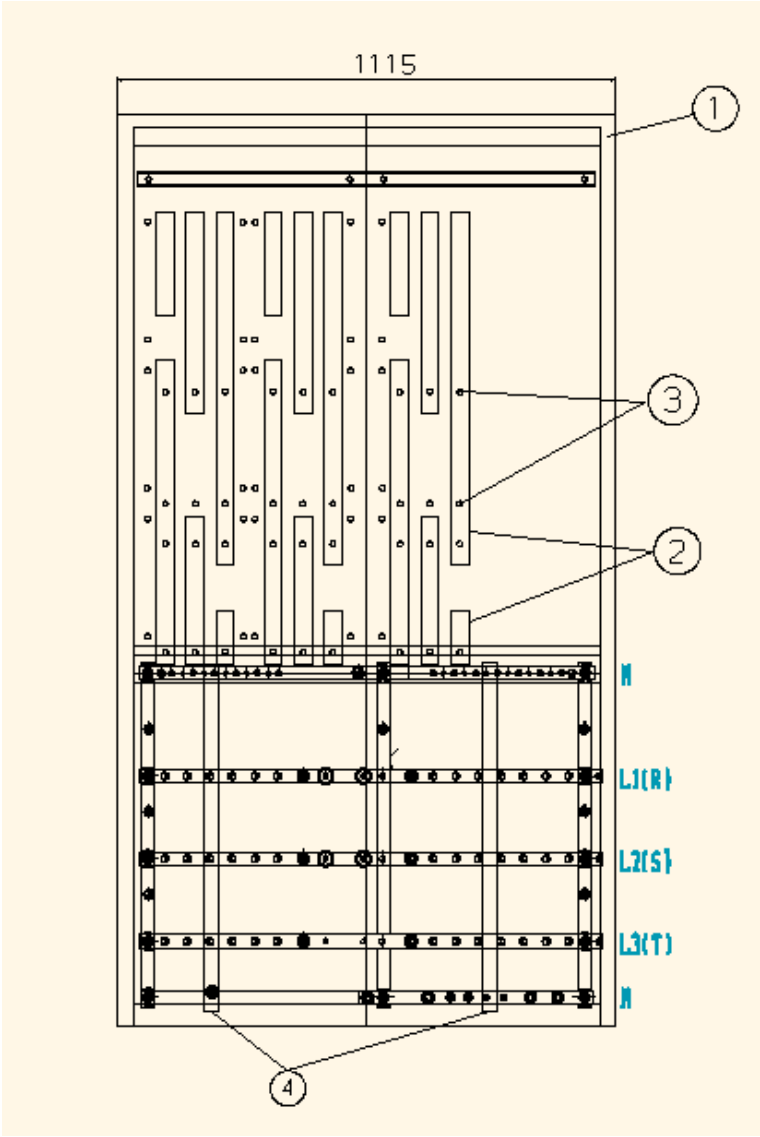
1. Central metering cabinet for 9 metering.
2. Fuse disconnector 3X400 – See appendix F.9 (1 pcs).
3. Fuse rail size "00" – See appendix F.8 (9 pcs).
4. Meter's board – See appendix F.10 (9 pcs).
5. $16mm^2$ din rail clamp for copper wire With Sides cover – see Appendix F.2 (36 pcs).
6. Final closure of the 16 mm^2 clamp (11 pcs).
7. Clear plastic cover – see Appendix F.4 (9 pcs).
8. Cover for wire – see Appendix F.3 (72 pcs).
9. flexible cable $150mm^2$ – brown – see Appendix F.7 (2 meter).
10. Copper cable lugs $150mm^2$ – M12 – see Appendix F.1 (3 pcs)
11. Copper cable lugs $10mm^2$ – M6 – see Appendix F.1 (9 pcs).
12. H07V-R $10mm^2$ sheathless cable – brown – according to SI 60227 (17 meter).
13. H07V-R $10mm^2$ sheathless cable – brown-orange – according to SI 60227 (17 meter).
14. H07V-R $10mm^2$ sheathless cable – brown-black – according to SI 60227 (17 meter).
15. H07V-R $10mm^2$ sheathless cable – blue – according to SI 60227 (17 meter).
16. Paper sticker with no.bers for meter's boards, switches and fuse rail (27 pcs).
17. M10X16mm steel 8.8 screw, with zinc coating + yellow passivation coating thickness of min 12 micron (4 pcs.).
18. Conical spring washer for M10 steel 8.8 screw according DIN 6796, with zinc coating + yellow passivation , coating thickness of min 12 micron (4 pcs.).
19. End sleeve for copper wire $150mm^2$ – see Appendix F.5 (3 pcs).
20. End sleeve for copper wire $10mm^2$ (72 pcs).

Wiring diagram

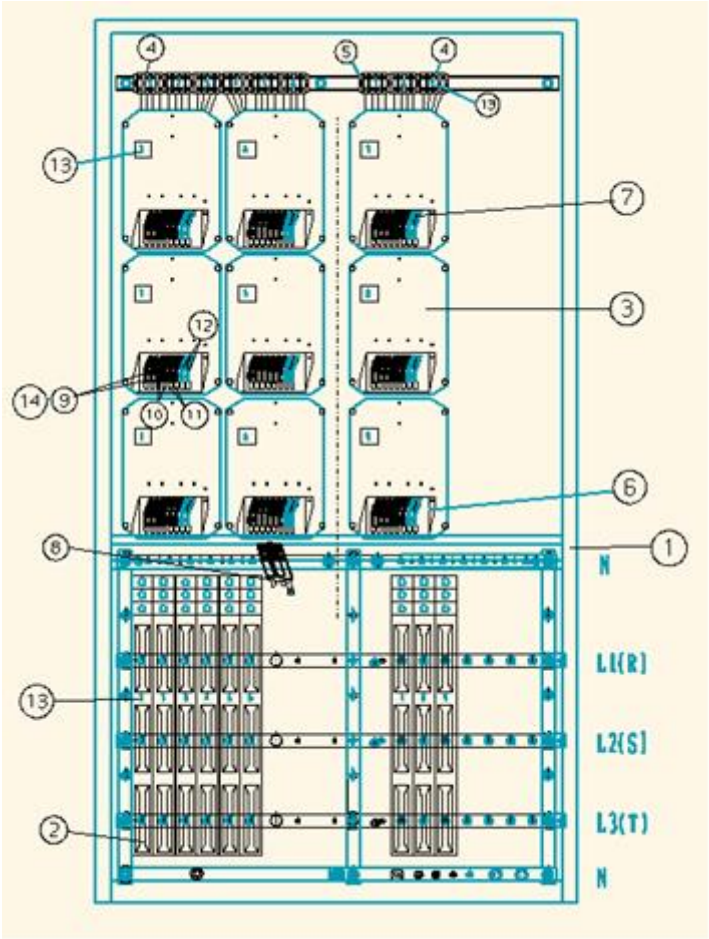
1. Brown.
2. Brown-orange.
3. Brown-black.
4. Blue.



Sketch E.8 – Equipped CMC for 9 metering without disconnector (5016718):



1. Central metering cabinet for 9/12 metering (unequipped) – Cat No. 5253767.
2. Plastic channel width 30 mm depth 25 mm (11 m).
3. M5X10 screw with Philips sunk head – steel according to DIN 965 (42 pcs).
4. Link between two neutral busbars (2pcs.).

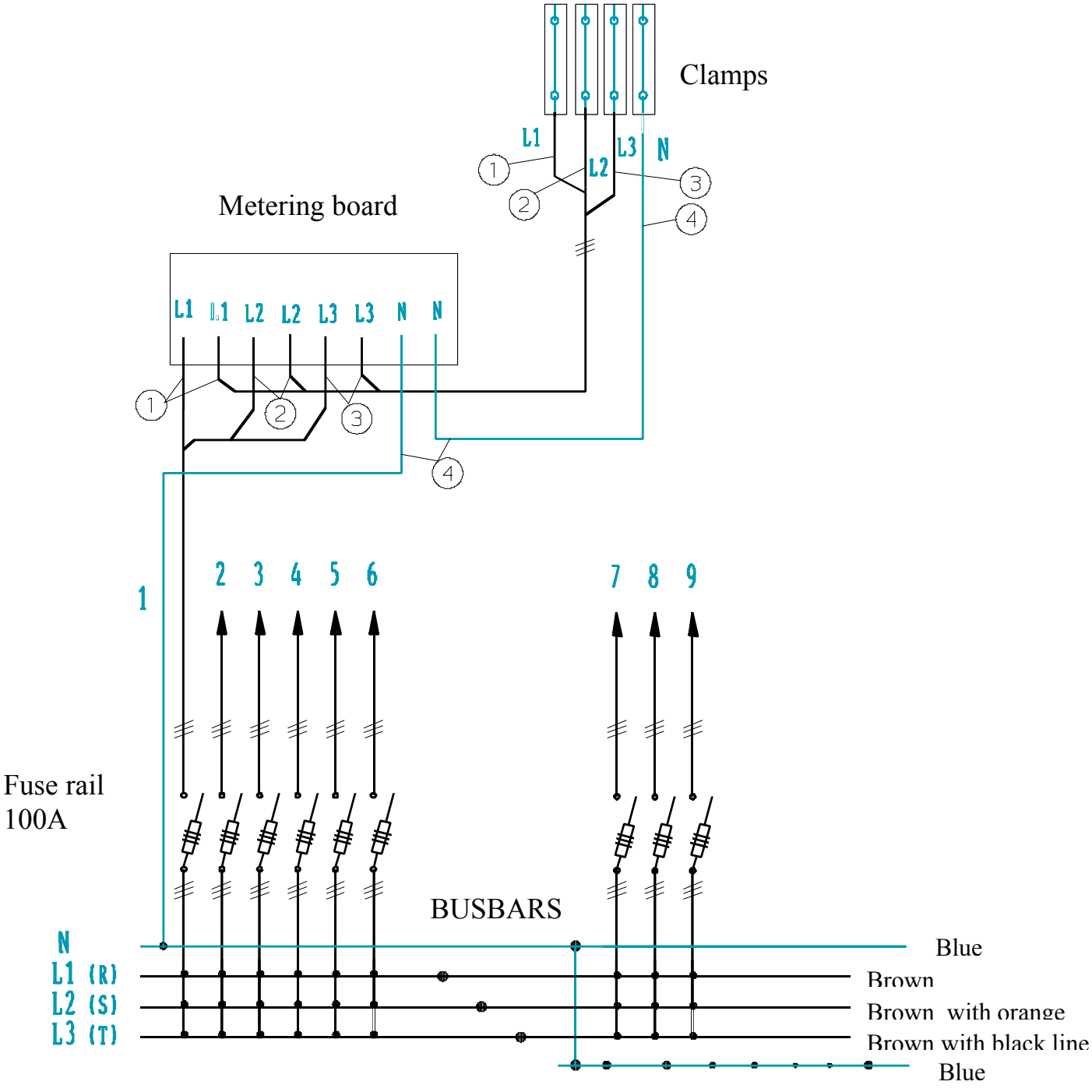


1. Central metering cabinet for 9 metering.
2. Fuse rail size "00" – See appendix F.8 (9 pcs).
3. Meter's board – See appendix F.10 (9 pcs).
4. $16mm^2$ din rail clamp for copper wire With Sides cover – see Appendix F (36 pcs).
5. Final closure of the 16 mm^2 clamp (11 pcs).
6. Clear plastic cover – see Appendix F.4 (9 pcs).
7. Cover for wire see Appendix F.3 (72 pcs).
8. Copper cable lugs 10 mm^2 – M6 – see Appendix F.1 (9 pcs).
9. H07V-R 10 mm^2 sheathless cable – brown – according to SI 60227 (17 meter).
10. H07V-R 10 mm^2 sheathless cable– brown-orange – according to SI 60227 (17 meter).
11. H07V-R 10 mm^2 sheathless cable– brown-black – according to SI 60227 (17 meter).
12. H07V-R 10 mm^2 sheathless cable – blue – according to SI 60227 (17 meter).
13. Paper sticker with no. for meter's boards, switches and fuse rail (27 pcs).
14. End sleeve for copper wire $10mm^2$ (72 pcs).

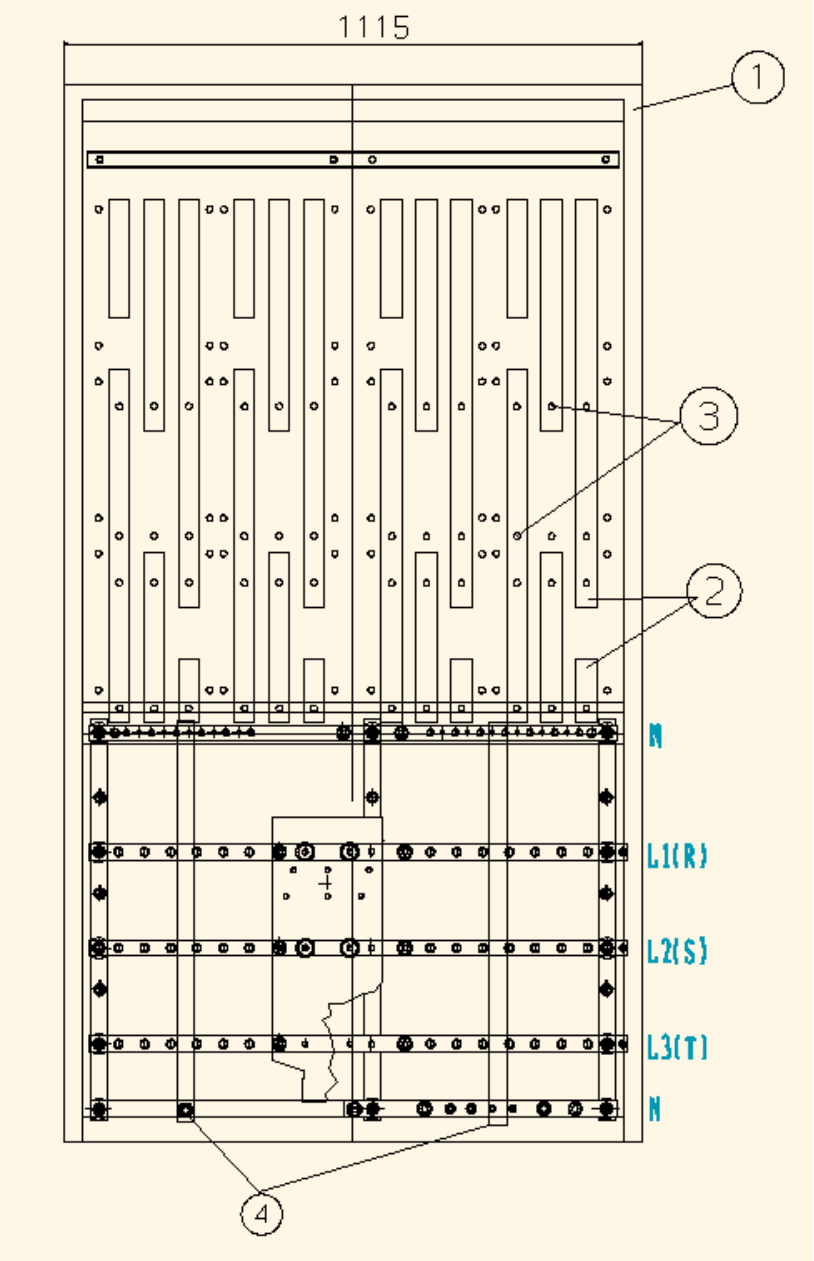
15.

Wiring diagram

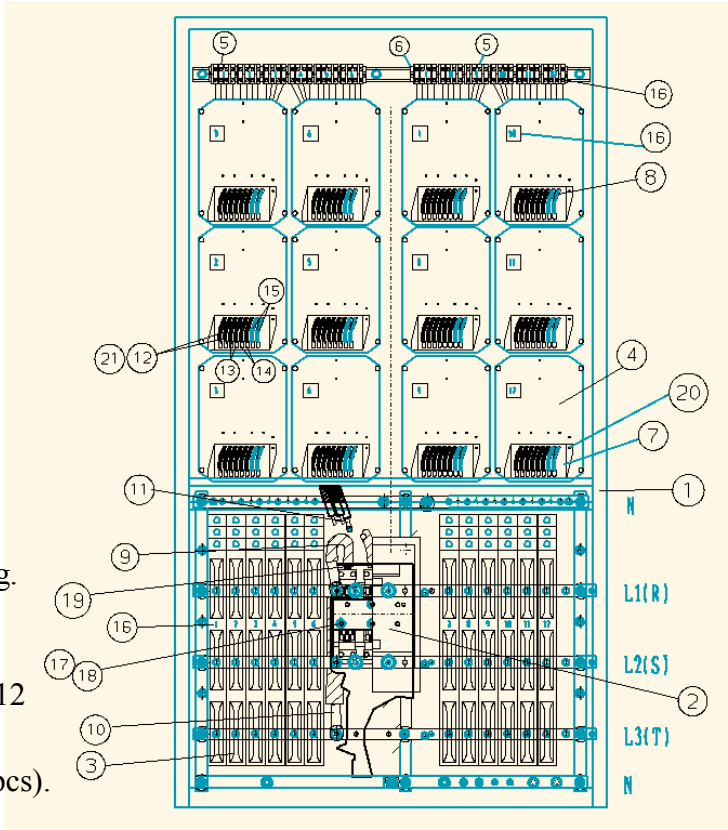
1. Brown.
2. Brown-orange.
3. Brown-black.
4. Blue.



Sketch E.9 – Equipped CMC for 12 metering with disconnector (505594):



1. Central metering cabinet for 9/12 metering (unequipped) – Cat No. 505578.
2. Plastic channel width 30 mm depth 25 mm (11 m).
3. M5X10 screw with Philips sunk head – steel according to DIN 965 (56 pcs).
4. Link between two neutral busbars (2pcs.).

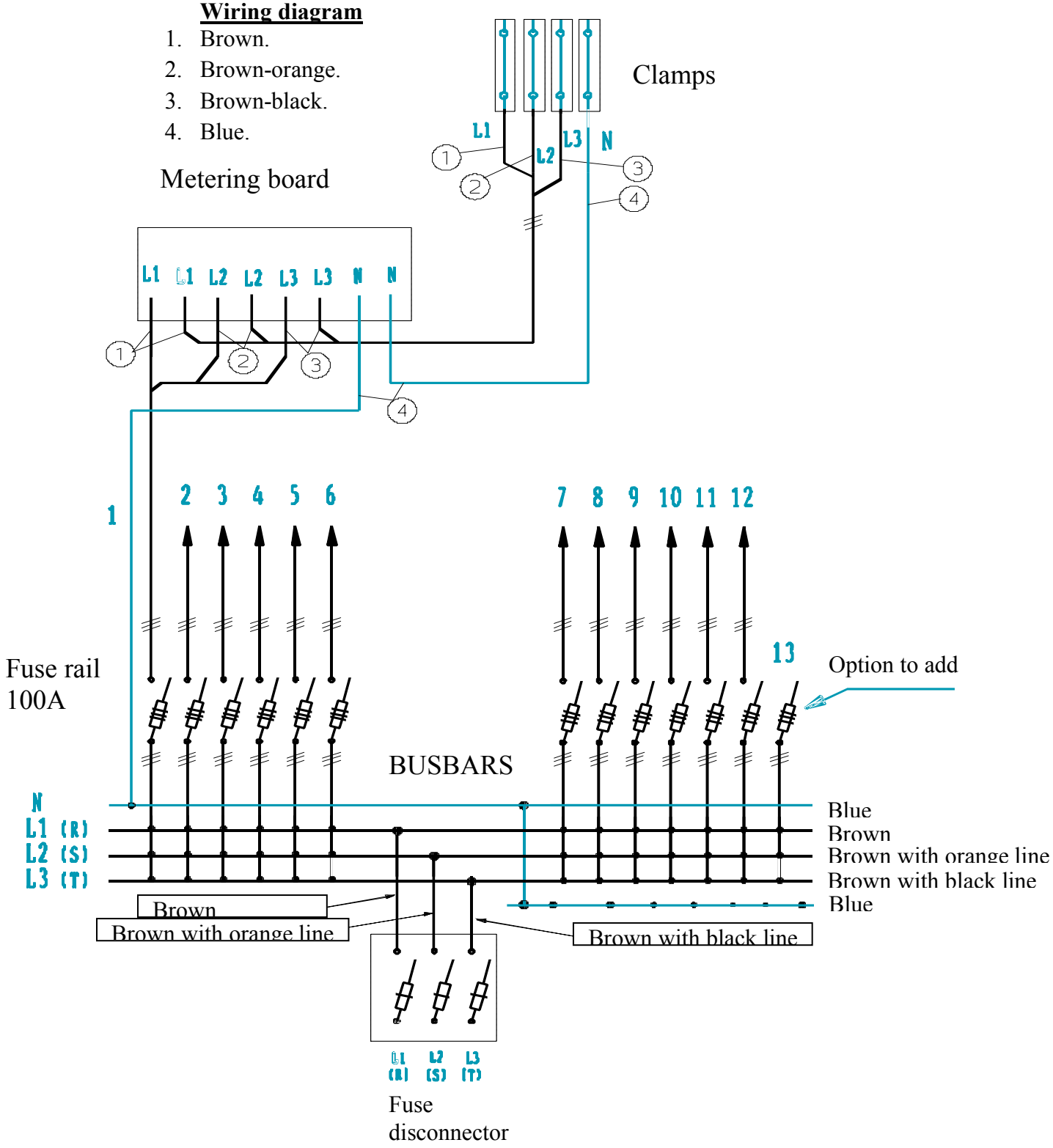


1. Central metering cabinet for 12 metering.
2. Fuse disconector 3X400 –
   See appendix F.9 (1 pcs).
3. Fuse rail size "00" – See appendix F.8 (12 pcs).
4. Meter's board – See appendix F.10 (12 pcs).
5. $16mm^2$ din rail clamp for copper wire
   With Sides cover – see Appendix F.2 (48 pcs).
6. Final closure of the $16mm^2$
   clamp (14 pcs).
7. Clear plastic cover – see Appendix F.4 (12 pcs).
8. Cover for wire – see Appendix F.3 (96 pcs).
9. Fexible cable 150
   mm^2– brown – see Appendix F.7 (2 meter).
10. Copper cable lugs 150 mm^2 – M12 – see Appendix F.1 (3 pcs)
11. Copper cable lugs $10mm^2$ – M6 – see Appendix F.1 (12 pcs).
12. H07V-R 10 mm^2 sheathless cable – brown – according to SI 60227 (17 meter).
13. H07V-R 10 mm^2 sheathless cable – brown-orange – according to SI 60227 (17 meter).
14. H07V-R 10 mm^2 sheathless cable – brown-black– according to SI 60227 (17 meter).
15. H07V-R 10 mm^2 sheathless cable– blue – according to SI 60227 (17 meter).
16. Paper sticker with no.bers for meter's boards, switches and fuse rail (27 pcs).
17. M10X16mm steel 8.8 screw, with zinc coating + yellow passivation coating thickness of min 12 micron (4 pcs.).
18. Conical spring washer for M10 steel 8.8 screw according DIN 6796, with zinc coating + yellow passivation , coating thickness of min 12 micron (4 pcs.).

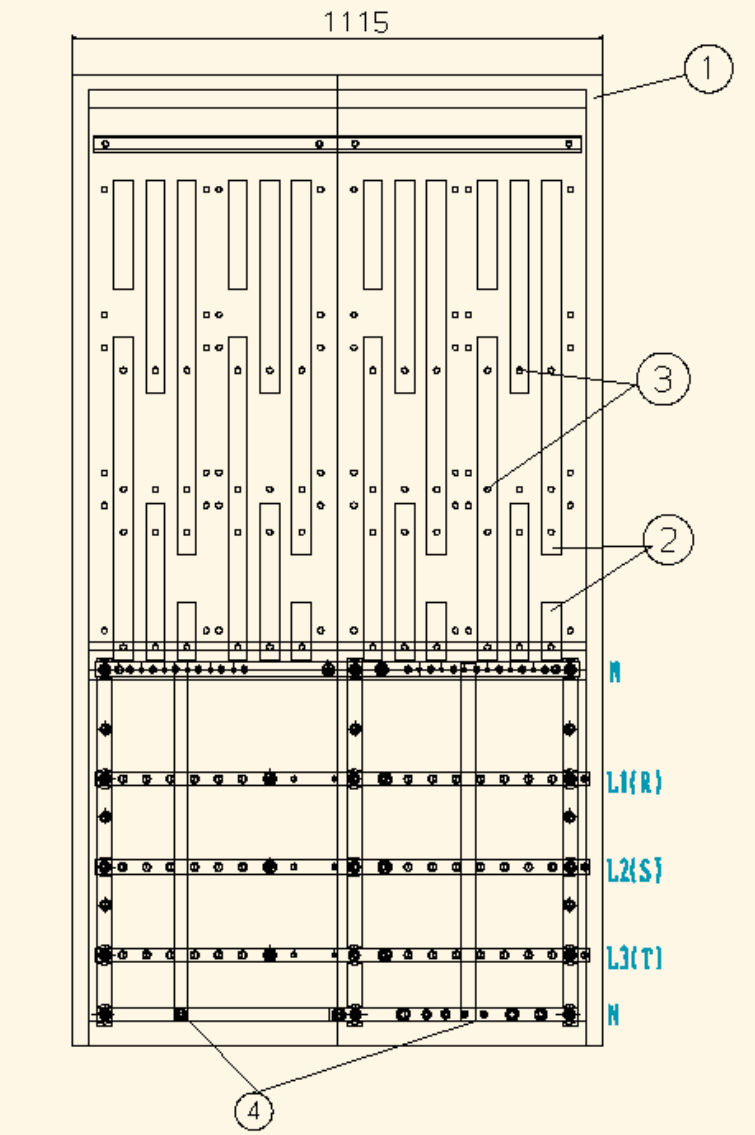
19. End sleeve for copper wire $150mm^2$ – see Appendix F.5 (3 pcs).
20. M10X16mm steel screw, with zinc coating, thickness of min 5 micron (24 pcs.).
21. End sleeve for copper wire $10mm^2$ (96 pcs).

Wiring diagram

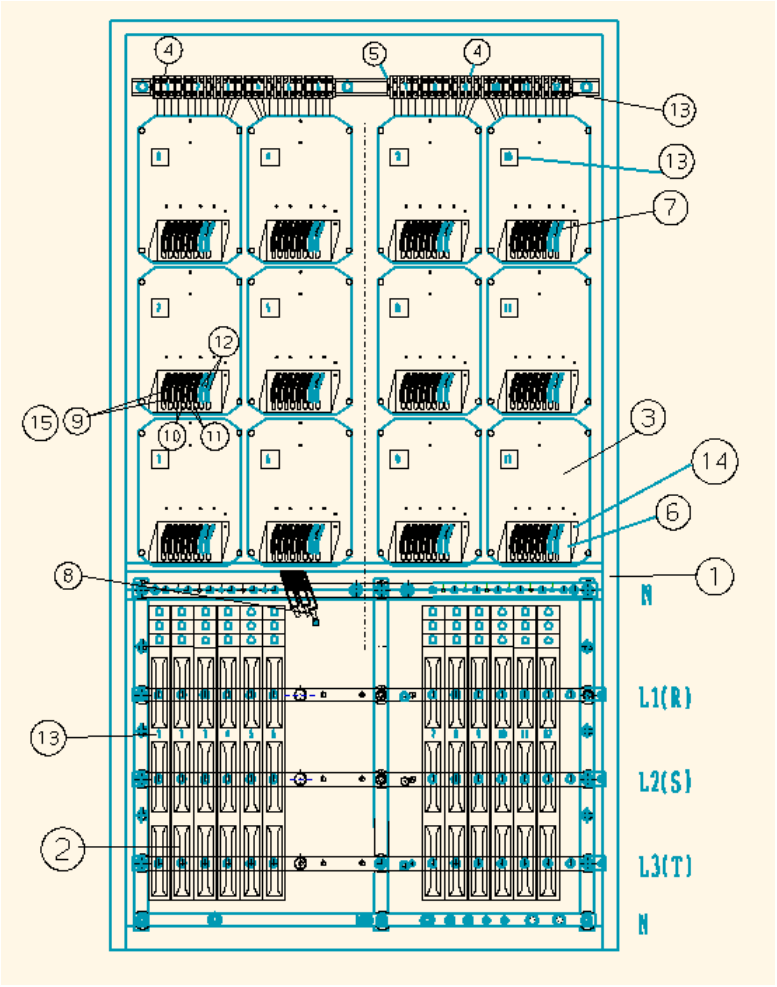
1. Brown.
2. Brown-orange.
3. Brown-black.
4. Blue.



Sketch E.10 – Equipped CMC for 12 metering without disconnector (5016730):



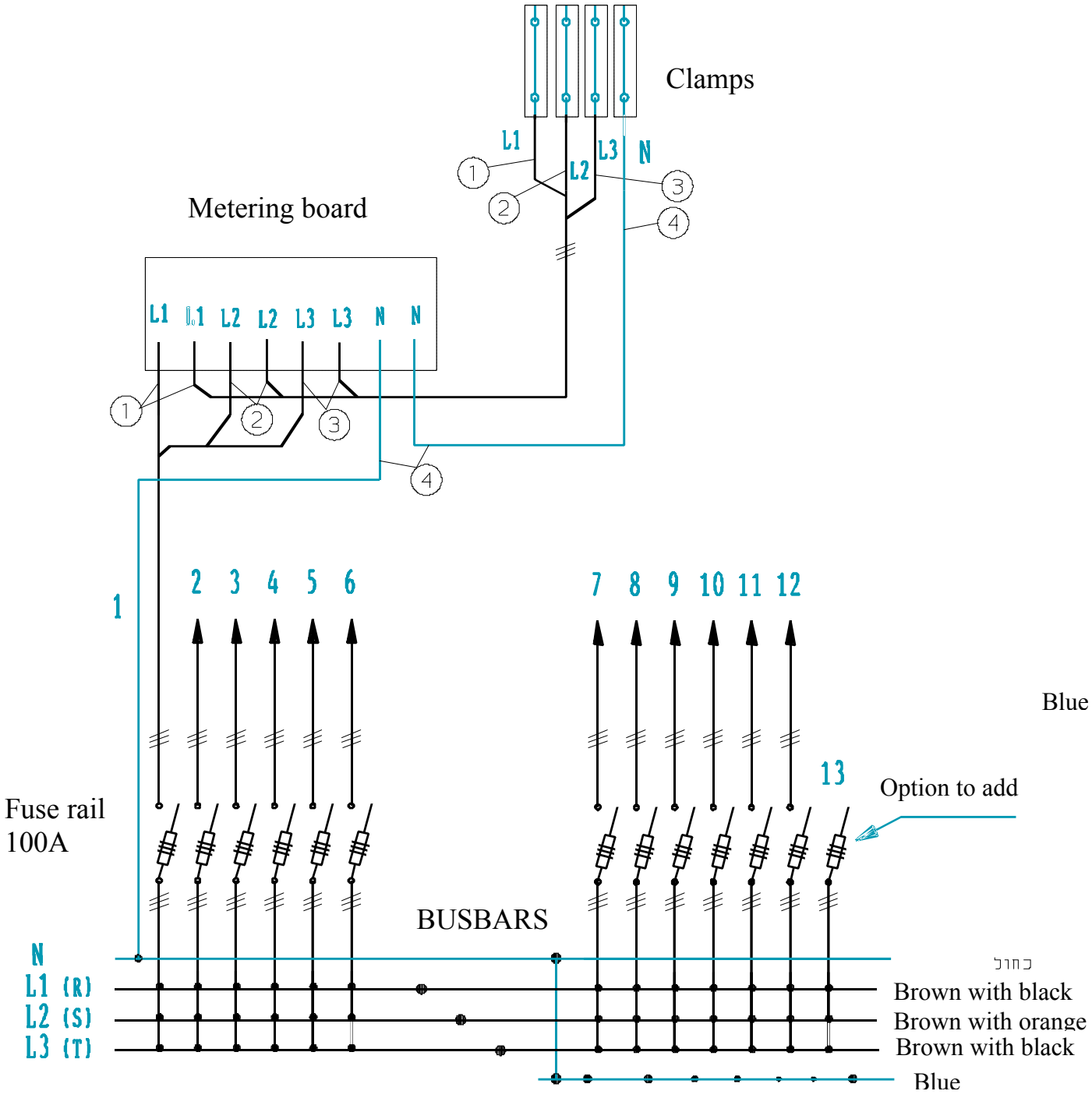
1. Central metering cabinet for 9/12 metering (unequipped) – Cat No. 5253767.
2. Plastic channel width 30 mm depth 25 mm (11 m).
3. M5X10 screw with Philips sunk head – steel according to DIN 965 (56 pcs).
5. Link between two neutral busbars (2pcs.).



1. Central metering cabinet for 12 metering.
2. Fuse rail size "00" – See appendix F.8 (12 pcs).
3. Meter's board – See appendix F.10 (12 pcs).
4. $16mm^2$ din rail clamp for copper wire With Sides cover – see Appendix F.2 (48 pcs).
5. Final closure of the $16mm^2$ clamp (14 pcs).
6. Clear plastic cover – see Appendix F.4 (12 pcs).
7. Cover for wire – see Appendix F.3 (96 pcs).
8. Copper cable lugs 10 mm^2 – M6 – see Appendix F.1 (9 pcs).
9. H07V-R 10 mm^2 sheathless cable – brown – according to SI 60227 (22 meter).
10. H07V-R 10 mm^2 sheathless cable – brown-orange– according to SI 60227 (22 meter).
11. H07V-R 10 mm^2 sheathless cable – brown-black – according to SI 60227 (22 meter).
12. H07V-R 10 mm^2 sheathless cable – blue – according to SI 60227 (22 meter).
13. Paper sticker with numbers for meter's boards, switches and fuse rail (36 pcs).
14. M4X10mm steel screw, with zinc coating thickness of min 5 micron. (24 pcs).
15. End sleeve for copper wire $10mm^2$ (96 pcs).

Wiring diagram

1. Brown.
2. Brown-orange.
3. Brown-black.
4. Blue.



APPENDIX "F"

Technical requirements for items to be supplied by the supplier

APPENDIX "F" — Technical requirements for items to be supplied by the supplier

F.1 – cable lugs:

1. For the technical bid, the Proposer shall submit to the Israel Electric Corp. a commitment that the cable lugs supplied with the equipped CMC shall be one of following approved:

No	I.E.Co. Catalogue number	Description	Manufacturer/ supplier name	Manufacturer's catalogue number
1	3168895	cable lugs 150 mm^2 – M12	Kfar Menachem	101308275
2			Uriel Shay MELEC	AUS150-12 BELL MOUTH
3	35279	cable lugs 50 mm^2 – M12	Kfar Menachem	101300262
4			MELEC Uriel Shay	AUS-50-12

2. The proposer may submit a technical offer for their selected cable lugs as an alternative from another producer. The offer must include all technical requirements specified in IEC specification NPS 58, as outlined below:

❖ **Operating Conditions of the Cables that the Lugs shall be Installed on:**

- Maximum rated cable temperature: 90°C.
- Short circuit maximum cable temperature (for duration up to 5 sec): 250°C

❖ **Construction**

- The cable lugs shall be in accordance with DIN 46235 (solderless), without inspection hole and of class "A" according to IEC 61238-1.
- The relevant dimensions shall be in accordance with the drawings.
- The cable lugs shall be made of DIN E-Cu 57, Cu-PHC (CW020A) or Cu-ETP (CW004A) copper seamless tubes acc. EN 13600:
  - EN H035 / R200 for cable lugs up to 25 mm^2 cross-section inclusive;
  - EN H065 / R250 for cable lugs over 25 mm^2 cross-section.
- The cable lugs shall be tin plated with at least 8 μm;
- The cable lugs shall be suitable for installation on cables manufactured according to IEC 60228 or HD 620.

❖ Drawings and Dimensions

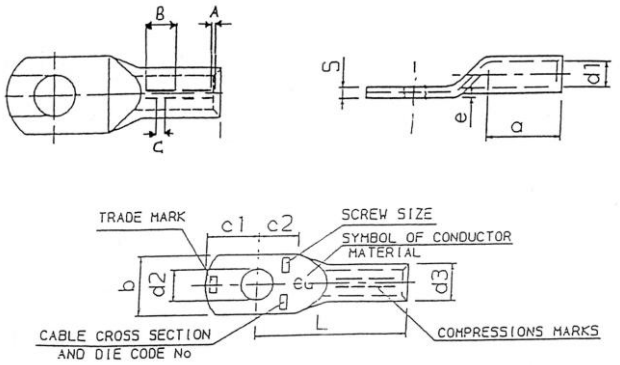


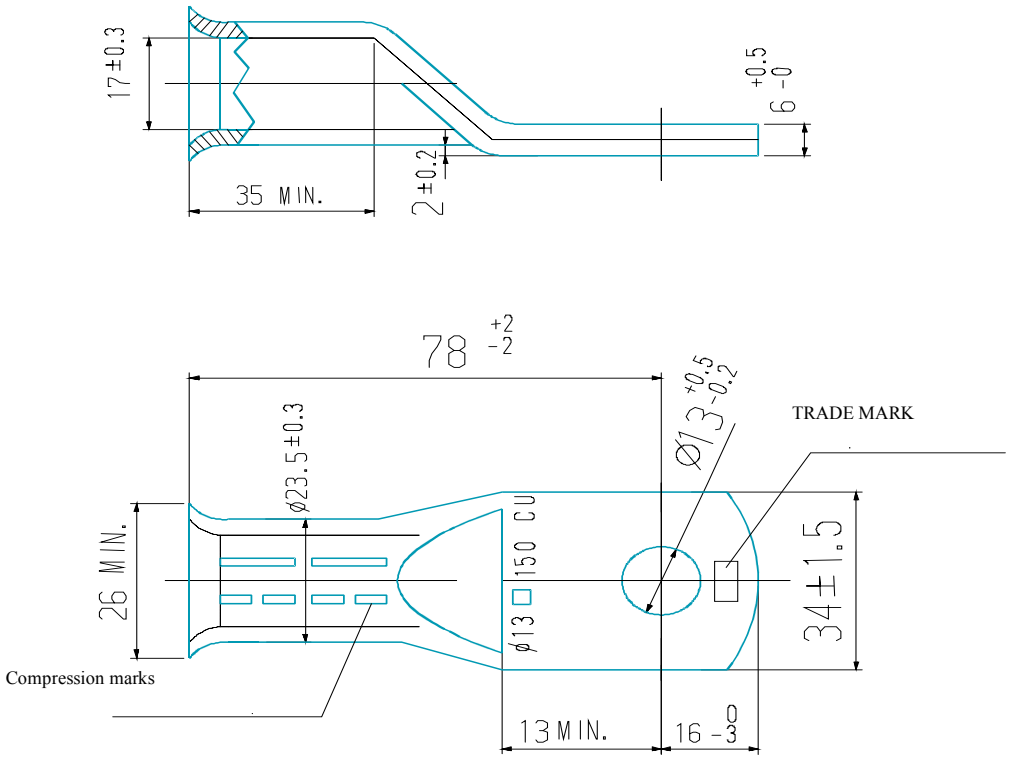
Table 1: Dimensions (in mm)

No.	Cable Cross section (mm^2)	for screw	a min	b		c_1 +0 -3	c_2 min	d_1	d_2	d_3	e ±0.5	L		s ±0.5
								±0.3						
1	10	M6	10	9		10.5	8	4.5	6.4	6	0.6	27		1.5
2	10	M8	10	13		13	10	4.5	8.4	6	0.6	29		1.5
3	16	M6	20	13		10.5	8	5.5	6.4	8.5	1	36	±2	2.5
4	16	M8	20	13		13	10	5.5	8.4	8.5	1	36		2.5
5	25	M8	20	16		13	10	7	8.4	10	1	38		3
6	25	M10	20	17		15	10	7	10.5	10	1	40		3
7	35	M8	20	17	±1	13	10	8.2	8.4	12.5	1	42		2.5
8	35	M10	20	19		15	12	8.2	10.5	12.5	1	42		2.5
9	35	M12	20	21		16	13	8.2	13	12.5	1	42		2.5
10	50	M8	28	20		13	10	10	8.4	14.5	1	52	-2 +4	4
11	50	M10	28	22		15	12	10	10.5	14.5	1	52		4
12	50	M12	28	24		16	13	10	13	14.5	1	52		4
13	50	M16	28	28		19	16	10	17	14.5	1	52		4

Table 2: **Compression marks**

Cable Cross-section (mm^2)	No. of crimp. marks		A ± 1(mm)		B ± 1(mm)		C ± 1(mm)		DIE CODE
	Hydr	Mech	Hydr	Mech	Hydr	Mech	Hydr	Mech	
10	-	2	-	*	-	*	-	*	6
16	-	2	-	2	-	5	-	6	8
25	-	2	-	2	-	5	-	6	10
35	-	2	-	2	-	5	-	6	12
50	-	3	-	2	-	5	-	4	14
150	2	4	3	3	14	5	2	3	22

For flexible cable 150 sq.mm:(cable lugs with extending hole)



F.2 clamps for 35 din rail – Technical requirement Acc. specification NPS-245:

- **approved suppliers:**

  For the technical bid, the Proposer shall submit to the Israel Electric Corp. a commitment that the clamps supplied with the equipped CMC shall be one of following approved:

No	I.E.Co. Catalogue number	Description	Manufacturer/ supplier name	Manufacturer's catalogue number
1	2389161	16 mm	Akiva Tolochinsky	932040
			Elmex	KYT16

- **alternative from another producer**

  As an option for another producer, the proposer can submit a technical offer for his option of clamps. The offer must be supplied with all technical requirements specified in the IEC specification NPS 245 sections 3 - 7.

F.3 cover for wire – technical guideline acc. specification NPS-277:

- **approved suppliers:**

  For the technical bid, the Proposer shall submit to the Israel Electric Corp. a commitment that the cover of wire supplied with the equipped CMC shall be one of following approved:

No	I.E.Co. Catalogue number	Description	Manufacturer/ supplier name	Manufacturer's catalogue number
1	1012293	10 mm^2	supergum	308101215

- **alternative from another producer**

  As an option for another producer, the proposer can submit a technical offer for his option of cover of wire. The offer must be supplied with all technical requirements specified in the IEC specification NPS 277 sections 1 - 5.

F.4 Clear plastic cover

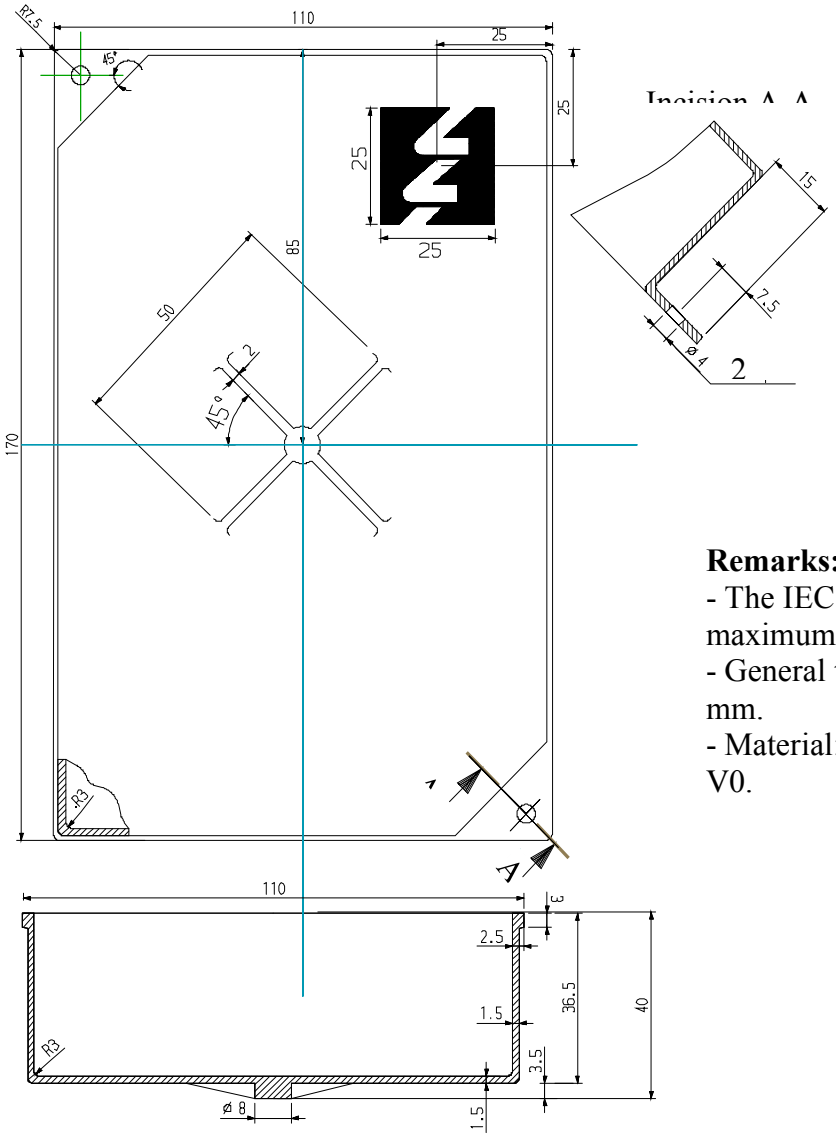
- **approved suppliers:**

  For the technical bid, the Proposer shall submit to the Israel Electric Corp. a commitment that the Clear plastic cover supplied with the equipped CMC shall be one of following approved:

No	I.E.Co. Catalogue number	Description	Manufacturer/ supplier name	Manufacturer's catalogue number
1	460469	Clear plastic cover	Akiva Tolochinsky	897390

- **alternative from another producer**

  As an option for another producer, the proposer can submit a technical offer for his option of Clear plastic cover. The offer must be supplied with all technical requirements specified in the IEC drawing NPD838, as outlined below:

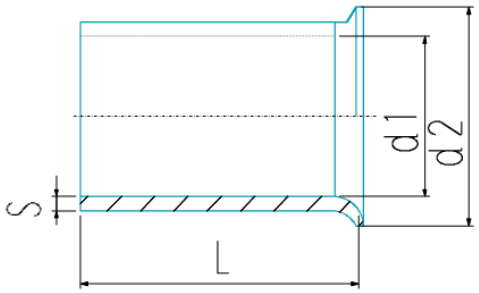


Remarks:

- The IEC symbol will be bold out from the maximum surface 1 mm.
- General tolerance in dimensions plus or minus 1 mm.
- Material: Polycarbonate transparent, flame resistant V0.

F.5 cooper end sleeve for wire:

Cooper end sleeve Tin-plated Acc. Standard DIN46228.
Material: Copper.
Coating: Tin minimum thickness of at least 3 microns.



Cross section in sq.mm	Thickness of the wall in mm **[S]**	Inner diameter in mm **[d1]**	External diameter in mm **[d2]**	Length of the end sleeve in mm **[L]**
150	0.5	18.5	21	32

F.6 insulator support L.V 40/30 mm:

- **approved suppliers:**
  For the technical bid, the Proposer shall submit to the Israel Electric Corp. a commitment that the insulator supplied with the equipped CMC shall be one of following approved:

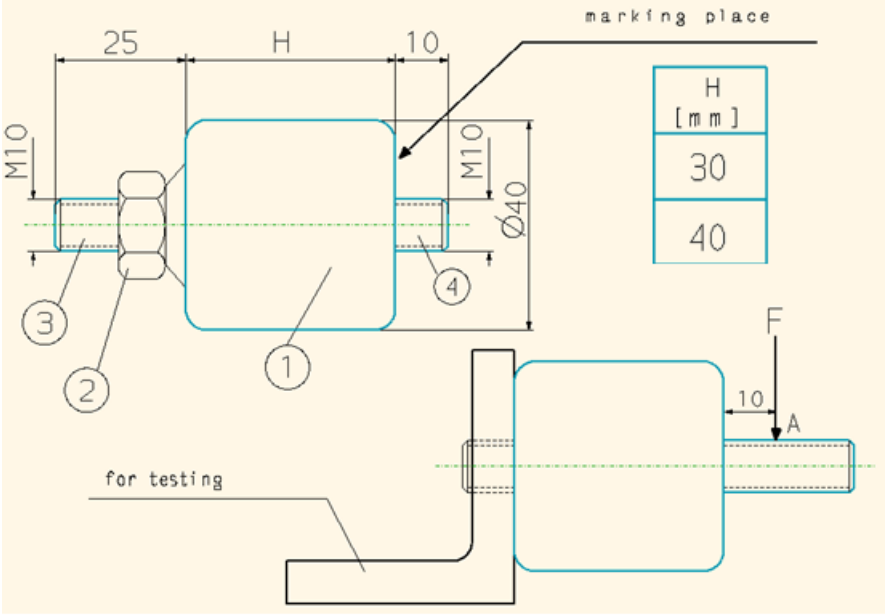
IEC P/N	Supplier / producer / P/N					
	Arco Inbar	Fridenson Engineering Ltd	Akiva Tolochinsky	Kfar Menachem	Nisko	Supergum
503730 (40 mm)	229840	FRE-3730	825391	101722691	80078901	308101671

- **alternative from another producer**
  As an option for another producer, the proposer can submit a technical offer for his option of insulator. The offer must be supplied with all technical requirements as outlined below:

Technical instructions for all the insulators:

- Material: Polyamide 6.6 with 30% fiberglass, flame rate V0 according to UL94.
- Color: Black.
- The insulator will stand a voltage of 5,000V for one minute without suffering any damage.
- Absorption capacity of the insulator in cold water should not exceed 100 milligrams, according to DIN 53495.
- The outer surface will be smooth, at least level N8, according to SI 780.
- Axis line of screws should not exceed more than one degree.
- Dimensions are in mm, tolerance 0.5mm.
- Each window shall be marked with the following:
  - Manufacture name/trade mark
  - 1000V

Technical instructions for 30 and 40 mm insulators:



- The insulator will stand at a temperature of 150ºC for 15 minutes, when a force of **F = 300kg** is applied on point A.
- The deviation between the screws axes does not exceed 1%.
- Part 1:Insulator.
  Part 2:M10 nuts with conical spring washer, coating thickness of min 10 micron, plated with zinc coating + yellow/blue passivation (dichromate).
  Parts 3 and 4: M10 steel 8.8 screw according DIN 933, coating thickness of min 10 micron, plated with zinc coating + yellow/blue passivation (dichromate).

F.7 flexible cable 50/150 Sq.mm

approved suppliers:

For the technical bid, the Proposer shall submit to the Israel Electric Corp. a commitment that the flexible cables supplied with the equipped CMC shall be one of following approved:

No	I.E.Co. Catalogue number	Description	Manufacturer/ supplier name	Manufacturer's catalogue number
1	5256797	Flexible cable 50, Blue	Synergy	2091946A
2	5256810	Flexible cable 150, Blue	Synergy	2091796A

alternative from another producer

As an option for another producer fuse rails, the proposer can submit a technical offer for his option of flexible cable. The offer must be supplied with all technical requirements specified in the IEC specification NPS 329 sections 3 - 7.

F.8 Fuse rails

3. For the technical bid, the Proposer shall submit to the Israel Electric Corp. a commitment that the fuse rails supplied with the equipped CMC shall be one of following approved fuse rails in the IEC:

		Supplier / producer / P/N			**IEC P/N**
Akiva Tolochinsky	**Energotec JEAN MULLER**	**Electra PRONOTEC**	**Nisko WOHNER**	**Uriel shay APATOR**	
	L2931194	428.52.10.04.09.EI-C	80078640		**505719 (size "2")**
923000		443.51.10.06.02.EI-C	80078100	63-001409-101	**962894 (size "00")**

4. For the technical approval the proposer shall submit the type/s of the fuse rails supplied with his proposal.

5. As an option for another producer fuse rails, the proposer can submit a technical offer for his option of fuse rails. The offer must be supplied with all technical requirements specified in the IEC specification NPS 40.

6. If the IEC will approve the option of different fuse rails than the types specified in the paragraph 1, the winner can supply the new type of fuse rail only after the final IEC technical approval of the proposed equipment.

7. IN order to receive approved cabinets and to avoid periods on non-supply of CMC, the winner shall be committed to supply the approved fuse rails – paragraph 1 – until the final approval of the new types of fuse rails.
If finally, the new type of fuse rail is not approved by IEC the winner must supply the fuse rail acc. To his offer specified in paragraph 1 – approved fuse rails in the all the order period.

F.9 Fuse switch disconnector

1. For the technical approval the proposer shall submit the type of the fuse switch disconnector supplied with his proposal, the proposer shall submit all technical documents according to NPS-207

2. As an option for another producer fuse switch disconnector during supplies, the proposer can submit a technical offer for his option of fuse switch disconnector. The offer must be supplied with all technical requirements specified in the IEC specification
   NPS 207.

3. If the IEC will approve the option of different fuse switch disconnector than the types approved in the technical approval (paragraph 1), the winner can supply the new type of fuse switch disconnector only after the final IEC technical approval of the proposed equipment.

4. IN order to receive approved cabinets and to avoid periods on non-supply of CMC, the winner shall be committed to supply the approved fuse switch disconnector – paragraph 1 – until the final approval of the new types of fuse switch disconnector.
   If finally, the new type of fuse switch disconnector is not approved by IEC the winner must supply the fuse switch disconnector acc. To his offer specified in paragraph 1 – approved fuse switch disconnector in the all the order period.

F.10 Meter's board

- **approved suppliers:**
  For the technical bid, the Proposer shall submit to the Israel Electric Corp. a commitment that the Meter's board supplied with the equipped CMC shall be one of following approved:

No	I.E.Co. Catalogue number	Description	Manufacturer/ supplier name	Manufacturer's catalogue number
1	645978	METERING BOARD FOR CENTRAL METERING, POLYCARBONAT	Nisko	80078042
			Tolochinsky	910110

- **alternative from another producer**
  As an option for another producer, the proposer can submit a technical offer for his option of Meter's board. The offer must be supplied with all technical requirements specified in the IEC specification NPS 87.

APPENDIX "G"

Warning sign

Warning sign

1. **Warning labels:**

1.1. A warning label (No. 1) according to drawing no. 1. The dimensions of the label shall be 200×250 mm. the label shall meet the requirements specified in clause 2.



Drawing 1 - Warning Label No. 1

1.2. A warning label (No. 2) according to drawing no. 2. The dimensions of the label shall be 200×250 mm. the label shall meet the requirements specified in clause 2.



Drawing 2 - Warning Label No. 2

1.3. A warning label (No. 3) according to drawing no.3. The dimensions of the label shall be 200×250 mm. the label shall meet the requirements specified in clause 2.



Drawing 3 - Warning Label No. 3

2. Technical requirements for labels No. 1, 2, 3

2.1. The colors of the labels shall be according to drawings No. 1, 2, 3.

2.2. The Labels shall withstand the service conditions as defined under clause 5.1.

2.3. The labels shall be printed on one of the following materials:

- Avery Dennison® T-1000 & W-1000 Series Engineering Grade Beaded Retro reflective Film.
- 3M Engineer Grade Prismatic Reflective sheeting Series 3430 with3 Pressure Sensitive Adhesive.

2.4. The silk print colors shall be resistant to UV and shall be one of the following:

- Avery Dennison Series 4930 Inks
- 3M Process color Series 880I
- Sun Chemicals- Coates GmbH HG-XL

2.5. If the bidder would prefer to use different materials or different methods (such as silk printing) than the labels shall meet the following requirements:

2.5.1. In case of silk printing:

- The thickness of the printing colors shall be at least 50µm.
- The I.E.Corp. enables two-color silk printing. The colors will be agreed with the successful Bidder during the prototype approval stage.

2.5.2. The labels shall be tested, and approved by a recognized laboratory according to the Last Edition of Standard ISO 4892-2 for 300 hours. The Change of color shall not exceed △YI=10.
The Bidder may offer another alternative for testing. Alternative testing shall be approved by I.E.Corp.

2.5.3. Additional Testing
The following tests are required:

- Visual testing
- Adhesion Test according to SI 758 part 27 (level 1)
- Adhesion properties test of the label
- Additional tests (dimensions, coating, finishing etc.)

APPENDIX "H"

Closing Torque Screw&nuts

Closing Torque Screw&nuts

The closing Torque of the screws and nuts of the busbar shall be:

1. Screw M12X45 – 49-51 N/m.
2. Screw M8X35 – 21-23 N/m.
3. Screw M6X30 – 8-10 N/m.
4. Nuts M12, M8 and M6 – 4-6 N/m.

APPENDIX "I"

STATEMENT OF MANUFACTURING EXPERIENCE

APPENDIX "I" - 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 the manufacture of POLYESTER CABINETS OR SIMILAR, according to paragraph 3.4, for at least 3 years in the last 5 years, prior to tender submission.
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

APPENDIX "J"

OBLIGATION TO SUBMIT TESTS REPORT UPON AWARD OF BID

OBLIGATION TO SUBMIT TESTS REPORT UPON AWARD OF BID

1. We hereby undertake to perform all the tests required for the proposed item upon award of bid.
2. The tests shall be performed in accordance with the requirements specified in paragraph 6 of this specification.
3. Tests reports will be submitted as acc. to schedule in Appendix C.

No. of tender: _____

Manufacturer name: _____

Bidder name: _____

Date: _____

Manufacturer signature: _____ Bidder signature: _____

APPENDIX "K"

Statement of obligation

Subject: Statement of obligation

We hereby undertake that the proposed items will be accordingly to the requirements specified in the I.E.C Specification NPS-325/3

Tender No.: _____

Manufacture country: _____

Manufacture name: _____

Supplier name: _____

Date: _____

Supplier Signature: _____ Manufacture Signature: _____

APPENDIX "L"

Statement of obligation – same product.

Subject: Statement of obligation – same product.

We hereby undertake that the proposed products already supplied and approved by I.E.C. and will be identical to the previously supplied to I.E.C. (item without any changes) and will be according 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						
2						
3						
4						
5						
6						
7						
8						
9						
10						

APPENDIX "M"

Revision History

APPENDIX "L"- Revision History:

Version	Date	Update by	Modifications
4	08/2025	Khaled Saleh	The revision includes the following: 1. Revised due to update necessary. 2. Adding short base. 3. Adding Appendix "I" – Statement of Manufacturing Experience 4. Adding Appendix "J" – OBLIGATION TO SUBMIT TESTS REPORT UPON AWARD OF BID 5. Adding Appendix "K" – Statement of obligation 6. Adding Appendix "L" – Statement of obligation – same product 7. Technical documentation update: a. Organized in electronic file. b. Adding the alternative for similar sample. 8. TESTS & INSPECTIONS – compatibility with the latest IEC edition. 9. General errors are corrected in all section. 10. Adding link between neutral busbars in 6/9/12 cabinet. 11. 13.5 mm length of the wire that coming out from the meter's board. 12. Adding technical requirements for separation plate. 13. Adding technical requirements for doors (clause 3.9). 14. The green semi-cylinder lock will be provided separately in a plastic bag. 15. M12X35mm screw for phase busbar.

			16. Adding end sleeve for copper wire that coming out from the meter's board. 17. Add spacers for specific screws in the phase busbars. 18. Marking requirements updated