EDMS 19-302-2

SPECIFICATION
FOR
LOW VOLTAGE 3Ph. 630A, SIZE 3
VERTICAL FUSE-SWITCH- DISCONNECTOR

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1- SCOPE

This specification covers the minimum technical requirements for design, engineering, manufacturing, testing low voltage 3ph, 630A , size3,vertical fuse-switch-disconnectors (fuse-combination units) for low voltage switchgear, controlgear and intended to be connected to circuits, the rated voltage of which dose not exceed 1000V a.c.

2- APPLICABLE STANDARDS

Unless otherwise specified in this specification, L.V. 3ph, 630A , size 3, vertical fuse-switch-disconnectors (fuse-combination units) should comply with the latest edition of IEC standard and should be designed, manufactured and tested in accordance with the applicable IEC standards as following

S. No	Standard No.	Description
1	IEC 60947-1	Low voltage switchgear and controlgear – General rules
2	IEC 60947-3	Low voltage switchgear and controlgear – switches, disconnectors, switch-disconnectors and fuse-combination units

3- ENVIRONMENTAL CONDITIONS:

The performance of L.V. 3ph, 630A , size3,vertical fuse-switch-disconnectors should be guaranteed for the following environmental conditions, any differences in the guaranteed performance should be clearly set out in the offer.

Minimum ambient temperature	-5°c
Maximum ambient temperature	45°c (50 °c as option).
Maximum relative humidity	95%.
Maximum altitude	1000 m

4- CONSTRUCTION REQUIREMENTS

1- The fuse-switch-disconnector (unit) should be designed and constructed to withstand the stress occurring during installation and normal use and in addition should be provide a specified degree of resistance to abnormal heat and fire.

2- The insulation materials which might be exposed to thermal stresses due to electrical effects should not be adversely affected by abnormal heat and by fire.

3- All parts of unit should be self-extinguishing and halogen-free and don`t contain heavy materials.

4- Flammability category of insulation materials (all parts) should be **V0** according UL 94.

5- The unit should has a facility of arc extinguisher which ensure breaking capacity.

6- The unit should be consist of fixed side (body) and hinged operating cover. The arrangement provided for fixing the switching unit on fuse base shouldn't be susceptible to damage during repeated operations.

7- The unit rated current 630 A and suitable for three fuse links size 3 (400A).

8- The manufacturer should specify which test method is to be used of glow wire testing.

9- Insulation level (Ui) not less than 800V.

10- Rated impulse withstand voltage ≥ 8 KV

11- Operating cycle with rated current ≥ 200 & without current ≥ 800

12- Over voltage category ≥ III (Table H.1 IEC 60947-1).

13- Protective device fuse linkNH3 up to 630A

- Rated breaking capacity current at 400 V ≥ 50 KA
- Rated making capacity current at 400 V ≥ 120 KA

14- Rated conditional short circuit capacity current at 400V ≥ 50KA

15- Utilization category should be AC-22B (Mixed resistive and inductive loads, including moderate overloads (Cluse 4.4 &Table 2 IEC 60947-3)

16- The unit should be safe and comfortable mounting, easy and quick assembly.

17- At open position they fulfill the separation condition set out for the separators on both terminals' sides of each pole.

18- Melting of fuse can be seen via window form outside

19- Protection degree not less than IP20.

20- Mechanical impact should be IK07 at least acc. to IEC 62262 (certificate is required).

21- Pollution degree is degree3 (certificate is required).

22- Bus bar Pole center should be 210 mm (with hole size 22*13.5 mm) see Fig.1.

23- The fuse switch disconnector should be supplied with three terminals of copper B.B with length not less than 12 cm and C.S.A not less than 250 mm^2 insulated with heat shrinkable tube.

24- The unit should has cooper bus bar which connect the fuse links with cable terminals.

25- Unit contacts should be made of electrolyte copper 99.9% & (copper conductivity not less than 57 MS/m) and coated with silver plated not less than 5 micron.

26- The unit should be fixed by two supports spaced by a distance 42 cm and fixing points should strong enough.

27- The unit should be complete with bolts, nuts, and washers.

28- The distance of connection part and enclosure surface of fuse switch disconnector should be not less than 2.5 cm.

29- An external Copper terminal are required with cross section area 250 mm^2 with length not less than 12 cm and should be insulated by shrinkable tube.

30- Copper terminals should be two or three levels and should have bolts (12mm) with nut, and two flat washers +one spring washer all hot deep galvanized.

31- The unit should have label card on the front for outgoing feeder name

5- Marking

The marking should be durable and easily legible. Compliance is checked by inspection, The following information should be marked on all fuse-links:

- Manufacturer`s name
- Rated insulation voltage
- Type/model no.
- Making/ breaking capacity.
- Maximum rated operation current
- Protection Degree IP
- IEC 60947-3

6- TESTS

Type Tests

- According to IEC 60947-3.

1. Temperature rise.
2. Dielectric test.
3. Leakage current.
4. Rated making and breaking capacity (over load).
5. Rated conditional short circuit current.
6. Operation performance.
7. Strength of actuator mechanism.
8. Over load test.

- Flammability test according to UL94.

Sampling Tests

Will test on a three samples of fuse-switch disconnectors taken at random from a batch and witnessed by Distribution Company representative. The supplier will pay all costs of tests.

Note:

The …EDC have right to test samples of switch fuse unit with installed at L.V panels for customers at panels builders.

- Visual inspection for all parts of fuse-switch -disconnector.
- Impulse withstand voltage.
- Power frequency withstand voltage

- Thickness of silver layer.
- Copper conductivity.
- Flammability test according to UL94.

7- DRAWING AND CATALOGUES:

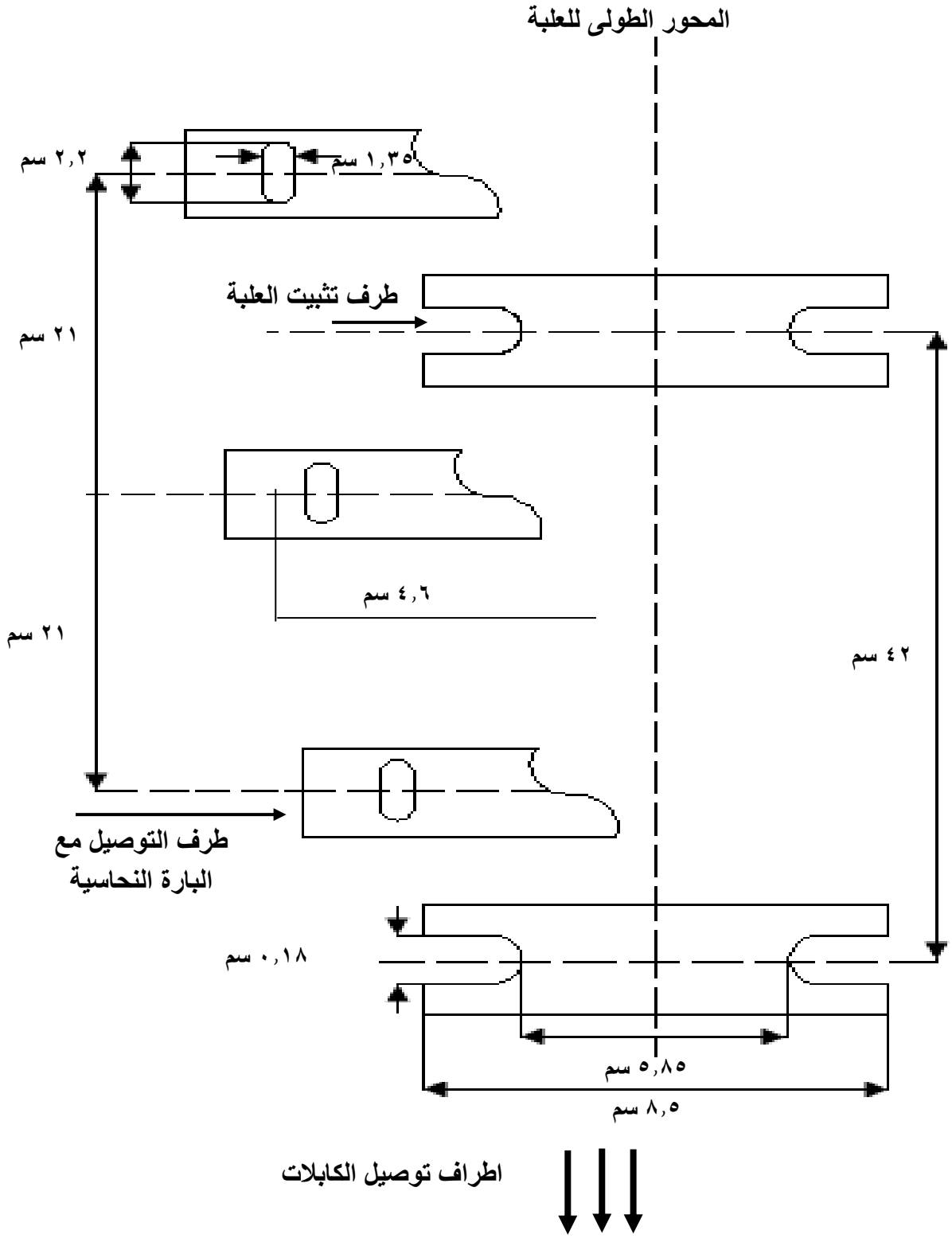
- All necessary drawings including layout, dimensions should be submitted with the offer.
- Technical catalogues containing the technical data should be submitted.
- Installation and maintenance manual at delivery.

8- GUARANTEE

- The supplier should guarantee the Fuse-Switch Disconnector against all defects arising out of faulty designed or workmanship or of defective materials for a period of 12 months from putting in service, or 18 months after delivery, whichever expires earlier.
- The good quality and manufacturing of the materials should be guaranteed.
- Any parts which on account of poor quality of the materials, manufacturing defects or poor assembly, should be replaced or repaired in the shortest time possible and free of charge.

9- GUARANTEE TABLES

- The tenderer should fill in the attached guarantee tables.
- Any tender not accompanied with clear and complete guarantee tables should be rejected.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طرف تثبيت العلبة
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طرف التوصيل مع
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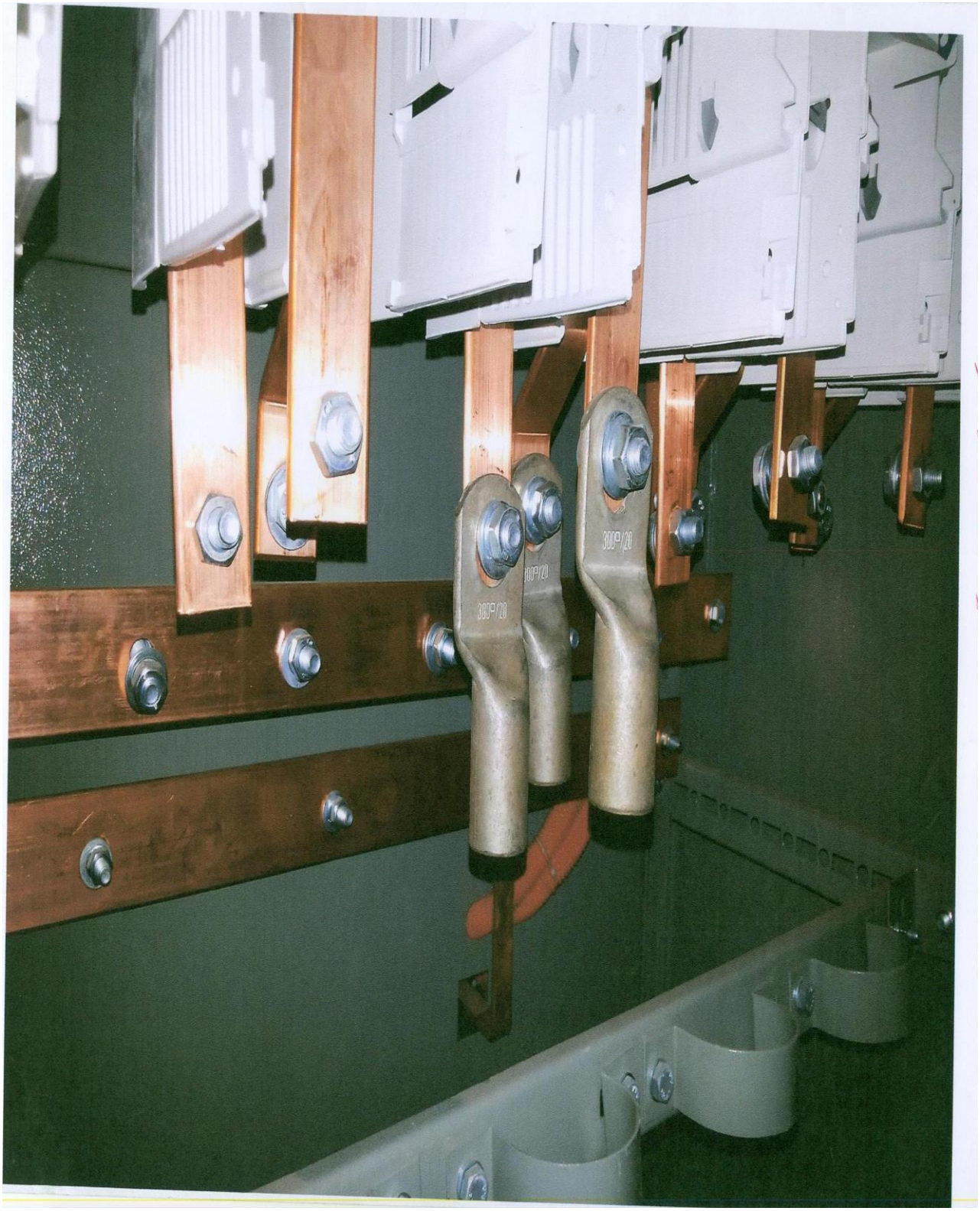

Guarantee Schedule For
L.V, 3Ph, 630A, Size 3, Vertical Fuse-Switch Disconnector

ITEM	Guarantee	Supplier
1. Manufacturer's name		
2. Standard specifications applied	IEC 60947-1 IEC 60947-3	
3. Model / Type No.		
4. Rated current	Amp.	
5. Rated voltage	Volts	
6. Bus bar pole center =210mm	mm	
7. Frequency	(HZ)	
8. Rated breaking capacity	KA	
9. Rated Making capacity	KA	
10. Rated conditional short circuit	KA	
11. Rated impulse withstands voltage (KV)		
12. Total power loss without fuse (W)		
13. Operating cycle with rated current	≥ 200	
14. Operating cycle without current	≥ 800	
15. Utilization category	AC-22B	
16. Over voltage category	III	
17. Pollution degree	3	
18. Arcing chamber	Yes / No	
19. Flammability category of insulation materials (all parts) should be	V0	
20. Protection degree	IP20	
21. Mechanical shocks	IK07	
22. Material and cross-section area of main contacts	mm2	
23. Copper conductivity	≥57 MS/m	
24. Material of coating of copper contacts / thickness	Silver/(5 µm)	
25. Material of insulating part		
26. Weight of unit	Gm	
27. Dimensions of Unit / size according to the drawing and table dimensions	Yes / No	

We guarantee the data given above for the equipment offered.

Signature: …… Date: …….