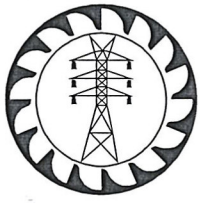
052: 2020

CEB
SPECIFICATION

HRC FUSE LINKS, INSULATED FUSE BASES, DISCONNECTOR SWITCHES AND ACCESSORIES



CEB Approved Specification
28/10/2020
Chairperson Dist. Coordination Committee

CEYLON ELECTRICITY BOARD
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SPECIFICATION FOR HRC FUSE LINKS, INSULATED FUSE BASES AND DISCONNECTOR SWITCHES

1.0 SCOPE

This Specification covers the general requirements of the design, manufacture, testing, supply & delivery of below mentioned items, to be used in the low voltage distribution systems.

1. HRC Fuse-Links with blade contacts (knife edge type) of Size 1 with rated current 30A/63A/ 100A/ 160 A / 200 A.
2. HRC Fuse-Links with blade contacts (knife edge type) of Size 2 with rated current 100A / 160 A / 200 A/ 250 A / 400 A.
3. HRC Fuse-Links with blade contacts (knife edge type) of Size 3 with rated current 500A.
4. Solid Links with blade contacts (knife edge type) of size 1/2/3
5. Size 1 Fuse-Bases (Fuse-holders) 200A for HRC Fuse-Links.
6. Size 2 Fuse-Bases (Fuse-holders) 400A for HRC Fuse-Links.
7. Size 3 Fuse-Bases (Fuse-holders) 500A for HRC Fuse-Links.
8. Outdoor Three Phase Fuse Switch Disconnector for Size 2 HRC Fuse-Links.
9. Three Phase Fuse Switch Disconnector Vertical Design for Size 2 / 3 HRC Fuse-Links.
10. Fuse Puller.

Required rated current and size will be mentioned in the price schedule.

Note: 160A and 200A ratings of item 1 shall be only taken for replacements and eventually discontinued.

2.0 SYSTEM PARAMETERS

(a)	Nominal voltage (U)	400 V
(b)	System highest voltage (U_m)	415 V
(c)	System frequency	50 Hz
(d)	Method of earthing	Effectively earthed
(e)	System fault level	25 kA

3.0 SERVICE CONDITIONS

(a)	Annual average ambient temperature	30 °C
(b)	Maximum ambient temperature	40 °C
(c)	Maximum relative humidity	90%
(d)	Environmental conditions	Humid tropical climate with heavily polluted atmosphere
(e)	Operational altitude	From M.S.L. to 1900 m above M.S.L.
(f)	Isokeraunic (Thunder days) level	100 days

4.0 APPLICABLE STANDARDS

The equipment and components supplied shall be in accordance with the latest editions of the standards specified below and amendments thereof.

(a)	IEC 60269-1:2014	Low-voltage fuses – Part 1: General requirements.
(b)	IEC 60269-2:2013	Low-voltage fuses - Part 2: Supplementary requirements for fuses for use by authorized persons (fuses mainly for industrial application) - Examples of standardized systems of fuses A to K.
(c)	IEC 60947-1:2014	Low-voltage switchgear and controlgear - Part 1: General rules.
(d)	IEC 60947-3:2015	Low-voltage switchgear and controlgear - Part 3: Switches, disconnectors, switch-disconnectors and fuse-combination units.
(e)	BS EN ISO 1461:2009	Hot dip galvanized coatings on fabricated iron and steel articles. Specifications and test methods.

Material conforming to other International Standards which are not less stringent than the Standards stipulated above may be offered. When such alternative Standards are used, reference to such Standards shall be quoted and English language copies of such Standards shall be provided with the offer.

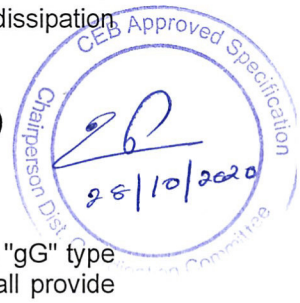
However, in the event of discrepancy, details given in this CEB specification supersede above standards.

5.0 BASIC FEATURES

The Fuse-Bases shall have the body (base) made of suitable insulating material with fixed contacts and terminals mounted.

The HRC fuse-links, Solid Links and bases shall withstand conditions of excessive humidity, and industrial or salt pollution as stipulated in Clause 3.0 above.

The HRC fuse-links, Solid Links and bases shall be designed and proportioned as to carry continuously it's rated current without exceeding a temperature rise and maximum heat dissipation as stipulated in IEC 60269-2.



5.1. HRC Fuse Links and Solid Links with Blade Contacts (For Item 1,2,3 and 4)

5.1.1. General

The HRC fuse-links and Solid with blade contacts (knife edge type) shall be of the "gG" type (general purpose) and of Size 1, 2 and 3 as per IEC 60269. HRC Fuse-links shall provide overload and short circuit protection to the low voltage distribution system.

The construction and dimensions of the HRC Fuse Links and Solid Links shall be as per IEC 60269.

The HRC Fuse link shall have provision for fixing it to the base and removing it from the fuse base by using an insulated fuse puller. Except for the attachment for the fuse replacement handle (fuse puller), the end plates shall not protrude radially from the insulating body.

5.1.2. Blade Contacts

The Blade contacts shall be made of solid copper or copper alloy and suitable to carry continuously its read current without exceeding the maximum temperature rise allowable as per IEC 60269.

The contact surfaces of the blade contacts shall be effectively silver/tin plated so as provide adequate contact after repeated operations and when left untouched for long periods.

5.1.3. Indicator

The HRC Fuse-links shall be provided with a device to indicate whether the fuse was blown.

5.1.4. Body

The body shall be made of electrical porcelain and it shall be filled with suitable arc quenching material to interrupt the rated short circuit current safely as per IEC 60269. The contact blades with the fuse element shall be firmly fixed to the body.

5.1.5. Fusing Characteristics

The time-current characteristics (time-current zones and overload curves) shall conform to IEC 60269 specified.

5.1.6. Current Ratings of Solid Links

Continuous current carrying capacity of Size 1, 2 and 3 Solid Links shall be 200A, 400A and 500A respectively.

5.2. Fuse Bases for HRC Fuse Links with Blade Contacts (Item 5,6 and 7)

5.2.1. Insulating Bases

The Bases shall be made of glazed porcelain or flame retardant non-hygroscopic synthetic material suitable for the purpose and shall not lose their insulating properties at the voltages to which they are subjected in normal service.

The terminals and fixed contacts shall be securely fixed to the insulating body to prevent any loose connections due to repeated operations, and the fasteners (Bolts and nuts) used shall be suitably covered with sealing compound to prevent exposure of life parts.

Two holes shall be provided for mounting the Fuse-Bases to metal panel boards.

It shall have adequate creepage distance to withstand the service conditions stipulated in Clause 3.0 above.

5.2.2. Contacts

The contacts shall be suitable for accepting HRC fuse-links as per IEC 60269 to accommodating continuous currents of 200A, 400A and 500A for Size 1,2 and 3 respectively. The contacts shall be of such material to provide adequate contact after repeated operations and when left untouched for long periods.

The contacts shall incorporate Steel springs to provide positive contact and the contact surfaces shall be properly silver or tin plated to provide effective contact throughout the period of service and the maximum temperature rise shall be as per IEC 60269-1 Table 5.

5.2.3. Terminals

The Terminal shall be an integral part of fixed contacts and shall be suitable for terminating XLPE/PVC insulated copper/aluminium cables with lugs of rated continuous current carrying capacities mentioned above for each respective size.

The cable termination bolt shall be minimum10mm diameter, hexagon head type and it shall be suitable for use with standard socket spanners. Two numbers of Nickel / chromium plated bolts and nuts with washers shall be provided for each fuse base.

The manufacturers shall mark the required tightening torque adjacent to the terminal fastener.

The Terminals shall be tin plated to provide effective contact throughout the period of service and the maximum temperature rise as per IEC 60269-1.

5.3. Outdoor Three Phase Fuse Switch Disconnector (Item 8)

The Fuse-Switch-Disconnector shall be used in the low voltage overhead distribution system to provide overload protection/reliable isolation and shall be of utilization category AC-22B as per IEC 60947-3.

It shall be of fully insulated, three Pole and neutral type On-Load-Switch Disconnector with HRC fuse for three phases and the facility to connect the aluminium or copper neutral wires from transformer side and load side. It shall be suitable to withstand conditions of excessive humidity and industrial or salt pollution and shall be suitable for outdoor use in the service condition stipulated in Clause 3.0 above. Technical features applicable to Fuse Switch Disconnectors are as follows:

a)	Rated insulation voltage	-	1000V
b)	Making current at 0.65 pf at 440 V	-	750 A
c)	Operation current	-	400 A
d)	Rated power acceptance at rated current	-	32W per pole
e)	Short time current/duration	-	10 kA /0.5 Sec.
f)	Short circuit making capacity	-	17 kA
g)	Degree of Protection	-	IP20
h)	Power frequency withstand voltage	-	3.5kV
i)	Impulse withstand voltage	-	9.8kV Peak

All insulated Fuse-Switch-Disconnector shall be made of non-hygroscopic, weather resistant, Flame Retardant, Robust, Glass fiber reinforced Polyamide compound possessing high thermal stability and good mechanical strength to withstand rough usage without any fracture or permanent distortion. It shall be treated to provide protection against deterioration due to Ultra-Violet radiation.

It shall be suitable to accommodate "size 2" HRC fuse link as per IEC 60269-2 with blade contacts (knife edge type).

5.3.1. Design

The Fuse-Switch-Disconnector shall have an upper housing and a hinged lower housing/fuse carrier and HRC fuse link.

The design of the Fuse-Switch-Disconnector shall be such that the disconnection of the fuse and removal of the fuse carrier (lower Housing) could be carried out using an Operating Stick from the ground.

The conductor terminals and the fuse contacts shall be designed and proportioned as to carry continuously its rated current without exceeding the maximum temperature rise as indicated in the relevant standards.

5.3.2. Manufacture

The upper housing shall be securely fixed to an integral mounting bracket and the lower housing /fuse carrier shall be hinged to the upper housing for the three phases.

The means of opening, closing, removing or replacing the lower housing /fuse carrier shall be via an operating stick fitted with an operating head (hook) and it shall be possible to operate the device from the ground level directly below the unit. The indication of closed (contact made) and open (contract broken) position of the device shall be provided and shall be clearly and definitely visible from the operating position.

The device shall allow the fuse carrier to be placed in a closed mode, with or without fuses. Provision for lamp Indication when the fuse is blown shall be available. When the fuses are not present, lamp indication should activate.

The temperature rise limit of the contacts and terminals shall be as per IEC 60947-1. Temperature rise should not cause any damage to the device or impair the performance of the device.

5.3.3. Upper Housing and Fuse Base

The upper housing should be coupled together including all phases and neutral. The upper housing of the fuse switch disconnector unit shall be firmly bolted to a steel mounting bracket to form a three phase and neutral assembly.

The following shall be provided with the upper housing;

a) 400A Fuse Bases to accommodate knife edge type HRC fuse links of size 2, which shall be securely fixed to the upper housing.
b) In case of neutral, a solid link shall be firmly installed (preferably bolted) with a relevant fuse base which cannot be disconnected from the ground.
c) Terminals for adequately accommodating and securely clamping the incoming and outgoing PVC / XLPE copper/aluminium cables of size range 50 – 95 sq. mm.
d) Arc chute shall also be provided for safe breaking of inductive load as per utilization category AC 22B.
e) Galvanized Steel Mounting Brackets with provision for mounting to concrete pole shall be an integral part of the upper housing, as indicated in the Drawing No. DS&S/2020/052/A (Annex – A1).

5.3.4. Lower Housing / Fuse Carrier

The lower housing/fuse carrier shall be individual units which can be operated separately.

The lower housing shall have the following:

a) Arrangement for holding the knife edge type HRC fuse links for the three phases.

b) Provision for Hinge connecting the lower housing/fuses carrier to the upper housing and closing / opening the lower housing.

c) The means of opening, closing, removing or replacing the lower housing/fuse carrier shall be via an operating stick fitted with a standard operating head (hook).

5.3.5. Contacts and Terminals

5.3.5.1. Contacts

The contacts shall be suitable for accepting up to 400A HRC fuse-link /solid-link and shall be of such material to provide adequate contact after repeated operations and when left untouched for long periods.

All contacts surfaces shall be Tin/Nickel plated to provide effective contact throughout the period of service.

5.3.5.2. Terminals

Suitable terminal fittings shall be supplied for terminating 50 - 95 mm² / Aluminium/Copper cables with cable sockets.

And the design of the terminal shall be such that the live parts are not exposed.

The cable termination fastener shall have a hexagon head of 14mm across flats and be accessible for using standard socket spanners.

When a cable termination uses two fasteners, the order of tightening shall not be detrimental to the termination.

5.3.6. Mounting Bracket

The Fuse-Switch-Disconnector mounting bracket "for 3ph. and neutral" shall have provision for mounting on concrete pole with two numbers 16mm dia. bolts and nuts and shall be strong enough to withstand the operating forces throughout its service.

The Bracket shall be made of steel and shall be hot dip galvanized conforming to BS EN ISO 1461 and shall be treated to prevent formation of white rust.

5.3.7. Operating Rod

The Operating Rod shall be of fully insulated type, suitable for disconnecting and engaging the lower housing (fuse carrier) and removing and replacing the lower housing (fuse carrier) with the HRC fuse links. Length of the operating rod shall not be less than 1.2m.

Provision for voltage indication (to check the fused HRC Fuse Links) shall be available with the operating rod.

One operating rod for every 100 Fuse switch disconnectors or part thereof shall be supplied.

5.4. Three Phase Fuse Switch Disconnector Vertical Type (Item 9)

This is intended to use in feeder pillar panels in low voltage distribution system to provide overload protection/reliable isolation and shall be of utilization category AC-22B or more rigorous as per IEC 60947- 3. The Fuse switch disconnectors of vertical design shall be suitable to mount directly on busbars by means of screws, with spacing of 185mm. The width of the switch shall be less than 100mm. It shall be suitable to accommodate "Size 2" or "Size 3" HRC fuse link as per the price schedule.

Vertical type fuse cutout shall have a modular design with a lever to pull out the fuses. The levers shall be connected in such a way to enable 3-pole operation. Option should be available to select 3 pole or individual pole operations at site. There shall be sufficient protection for the operator of the fuse from instantaneous arcs.

Cable terminals to the fuse disconnector shall be facilitated from the bottom. Status of the HRC fuse shall be indicated by means of light and there shall be proper mechanism to lock the cover of the

fuse switch disconnector to avoid unauthorized operations.

5.5. Fuse Puller (Fuse replacement Handle) (Item 10)

The Fuse Puller Shall be of fully insulated type suitable for replacing the HRC Fuse links of sizes 1,2 and 3 from the fuse bases. It shall be of rugged construction, compact and be provided with a suitable spring-loaded locking arrangement for easy handling. A cover should provide to protect the operator's hand in case of arc.

6.0 REQUIREMENTS FOR SELECTION

6.1. Quality Assurance

The manufacturer shall possess ISO 9001:2015 or latest Quality Assurance Certification for the design, manufacture of offered item category as per clause 1.0.The certificate shall be valid throughout the delivery period of this bid. In the event the offered items are manufactured in a plant under the license of the manufacturer, the manufacturing plant shall possess ISO 9001:2015 or latest Quality Assurance Certificate for manufacturing and testing of offered item category. The Bidder shall furnish a copy of the ISO certificate certified as true copy of the original by the manufacturer, along with the offer.

6.2. Manufacturing Experience

The manufacturer shall have minimum of ten (10) years experience in manufacturing offered item category as per clause 1.0. The product offered shall have been supplied and used in service utilities satisfactorily outside the country of manufacture over past 5 years.

The manufacturer shall furnish a list of Authorities/Utilities where similar items were supplied during the past 5 years, indicating their names, addresses and contact details clearly. CEB reserves the right to communicate with Electricity supply authorities/utilities to items have been supplied with regard to the performance of them.

If the manufacturer has supplied similar items to CEB for the last 5 years with proven sales records; without any adverse performance records, such manufacturers will be exempted from above requirements.

6.3. Type Test Certificates

Type Test Certificates conforming to the above referred standards or any other international standard which is not less stringent, issued by:

Either

(a) an accredited independent testing laboratory acceptable to the CEB or

(b) an accredited or independent testing laboratory acceptable to the CEB where the type tests have been witnessed by CEB or a reputed independent body acceptable to CEB

shall be furnished with the offer. Type Test Certificates shall clearly indicate the relevant standard, items concerned, showing the manufacturers identity, type No. /catalogue No. and basic technical parameters. In case if the submitted type tests are according to any other international standard which is not less stringent than the specified, then the copy of the used standard in English shall be submitted with offer.

Proof of accreditation and accredited scope by a national/ international authority shall be forwarded with the offer. Test certificates shall be complete including all the pages as issued by the testing authority. Type test certificates shall be in English language. Parts of test certificates shall not be acceptable.

Following Type Test Certificates conforming IEC 60269-1, IEC 60269-2, IEC 60947-1 and IEC 60947-3 for the offered item shall be furnished with offer.

For HRC Fuse Links with blade contacts/Solid links as applicable

i. Verification of dimensions
ii. Verification of resistance
iii. Verification of temperature rise and power dissipation.
iv. Verification of operation
v. Verification of breaking capacity.
vi. Verification of the cut-off current characteristic.
vii. Verification of I^2t characteristics and over current selectivity.
viii. Verification of resistance to heat.
ix. Verification of non-deterioration of contacts.
x. Mechanical tests.
xi. Time-current characteristic curve.

For Fuse Bases for HRC Fuse Links

i. Verification of dimensions
ii. Insulating properties and suitability for isolation
iii. Verification of non-deterioration of contacts
iv. Verification of peak withstand current
v. Verification of resistance to heat.
vi. Mechanical Strength.
vii. Temperature rise and acceptable power dissipation.
viii. Resistance to abnormal heat and fire
ix. Resistance to rusting

For Fuse Switch Disconnectors

i. Temperature-rise
ii. Temperature-rise verification
iii. Dielectric properties
iv. Dielectric Verification
v. Leakage Current
vi. Rated making and breaking capacity
vii. Operational performance
viii. Rated conditional short-circuit current
ix. Strength of actuator mechanism
x. Overload test

7.0 INFORMATION TO BE FURNISHED WITH THE OFFER

The following shall be furnished with the offer.

(a) Technical details in English clearly identifying the offered items, but not limited to:

(i) The Comprehensive catalogues,
(ii) The dimensional drawings,
(iii) Schematic diagrams,
(iv) Calculations, graphs and tables
(v) Literature describing the operational features
(vi) Time/current characteristic curves
(vii) Markings

(b) ISO 9001:2015 or latest Quality Assurance Certificate in accordance with clause 6.1.

(c) Manufacturer shall furnish a list of supplies with supplied item, purchaser (specifying address contact persons and contact details, country), year & quantity to prove his manufacturing experience and outside the country sales in accordance with Clause 6.2.

(d) Test Certificates in accordance with the clause 6.3.

(e) Duly filled and signed 'Annex - B: Schedule of Technical Requirements and Guaranteed Technical Particulars'.

(f) Other relevant Technical Details, protection operating curves and Calculations.

Not furnishing above documents and details may result in offer being rejected.

8.0 PERFORMANCE GUARANTEES AND WARRANTY

Manufacturer shall provide 1-year warranty to CEB for manufacturing defects from the date of delivery to CEB stores. Manufacturer should forward a duly signed Warranty Certificate together with the letter of acceptance of the award.

9.0 SAMPLES

One sample of Outdoor Three Phase Fuse Switch Disconnector/Three Phase Fuse Switch Disconnector Vertical Design/Fuse Puller of the offered item shall accompany the tender to facilitate testing and evaluation.

For other items, two samples of each rating of the make and model of the offered item shall accompany the tender to facilitate testing and evaluation.

10.0 PACKING AND LABELING/MARKING

10.1. Packing

Ten numbers of HRC Fuse Links/Fuse Bases of same rating shall be suitably packed to prevent damage during transport and storage. Each packing shall be provided with a label indicating the size, current rating and the quantity.

In case of all Fuse switch disconnectors each unit complete with mounting brackets (if applicable) shall be suitable packed in cardboard boxes to prevent damage due to rough handling.

10.2. Identification and Labeling/Marking

The HRC fuse links and bases and Fuse Switch Disconnectors shall carry weather and corrosion proof markings as per IEC 60269-1and IEC 60947-1. Additionally, following particulars shall be marked.

(a) Words "Property of CEB"
(b) "Warranty 1 Y" shall be marked on the nameplate.

11.0 INSPECTION AND TESTING

11.1. Routine Tests

The Tests done for main components during manufacturing and assembling shall form the Routine Test certificate. It shall be furnished for the observation of the Engineer appointed by CEB at the time of inspection. In addition, the routine test certificates shall be sent with the shipment.

11.2. Inspection

The Successful bidder shall make necessary arrangements for inspection by an Engineer appointed by the CEB and also to carry out in his presence necessary Acceptance tests on equipment and material. CEB may waive off the inspection with the condition of witnessing the acceptance tests by an independent authority acceptable to CEB. In such a situation a notice of waive off will be issued in advance to the supplier.

11.3. Acceptance Tests

The following Sample / Acceptance tests as per IEC 60269-1, IEC 60269-2, IEC 60947-1 and IEC 60947-3 for the offered item shall be witnessed by the Engineer. Extra copies of these test certificates shall also be supplied with the equipment.

For HRC Fuse Links with blade contacts

i. Verification of Breaking capacity
ii. Verification of Temperature rise limits
iii. Verification of Power loss
iv. Testing of fuse -links of a homogeneous series

For Fuse Bases for HRC Fuse Links

i. Verification of peak withstand current
ii. Verification of resistance to heat.
iii. Mechanical Strength.
iv. Temperature rise.

For Fuse Switch Disconnectors

i. Verification of temperature rise limits
ii. 1 min. power frequency withstand test
iii. Leakage current
iv. Mechanical Operational test

12.0 ANNEXES

Annex A 1 - Outdoor Three Phase Fuse Switch Disconnector Drawing No. DS&S/2020/052/A

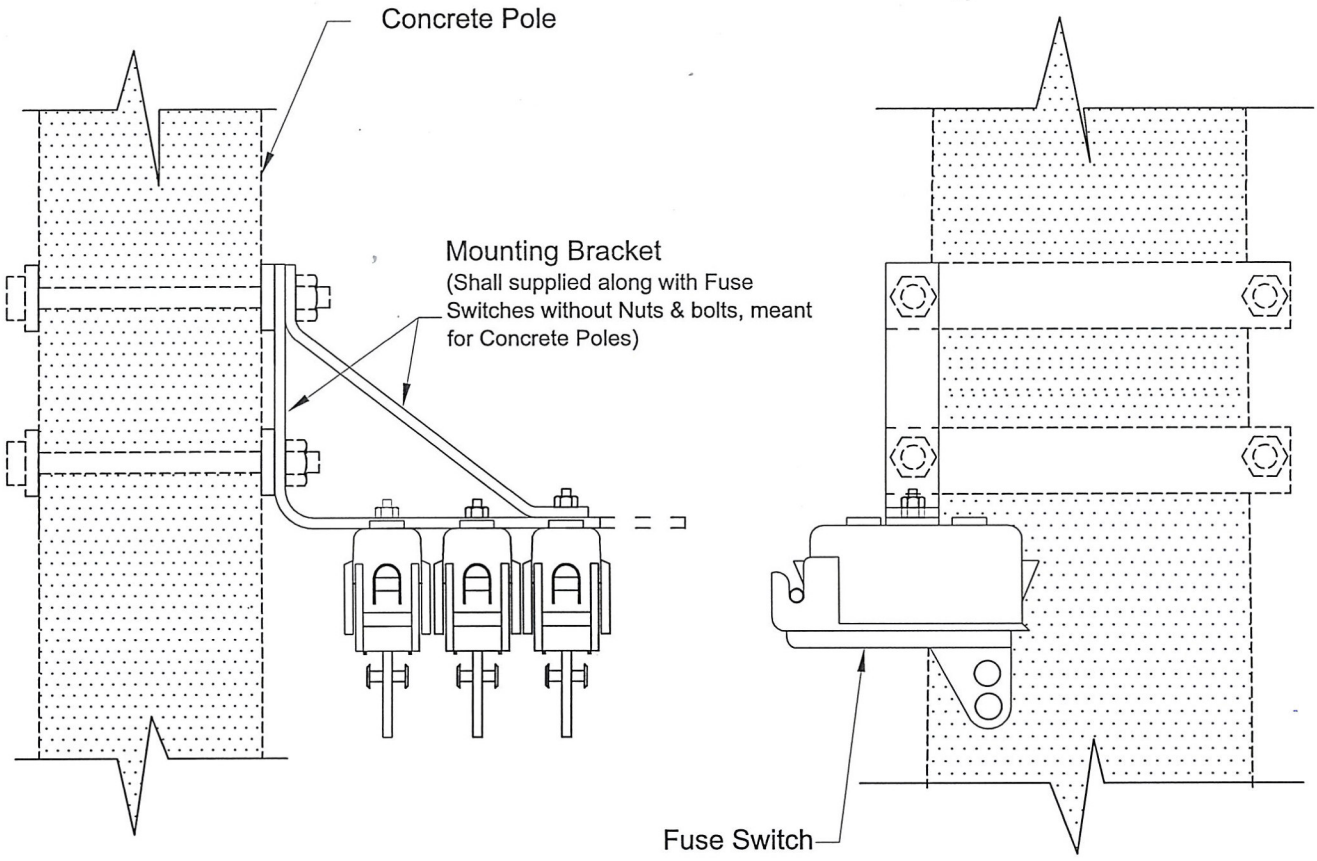
Annex A 2 - Three Phase Fuse Switch Disconnector Vertical Design Drawing No. DS&S/2020/052/B

Annex B 1 - Schedule of Technical Particulars – To be filled by the Manufacturer (HRC Fuse Links).

Annex B 2 - Schedule of Technical Particulars – To be filled by the Manufacturer (Fuse bases for HRC Fuse Links).

Annex B 3 - Schedule of Technical Particulars – To be filled by the Manufacturer (Low Voltage Fuse Switch Disconnector).

Annex C - Non - Compliance Schedule.



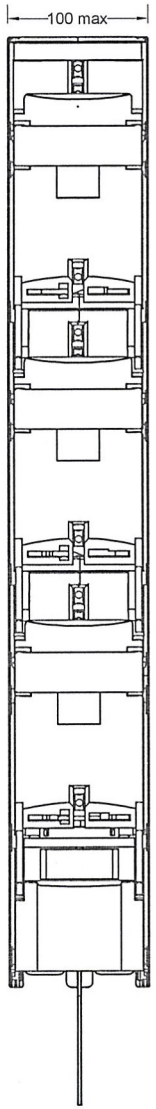
FRONT ELEVATION

SIDE ELEVATION

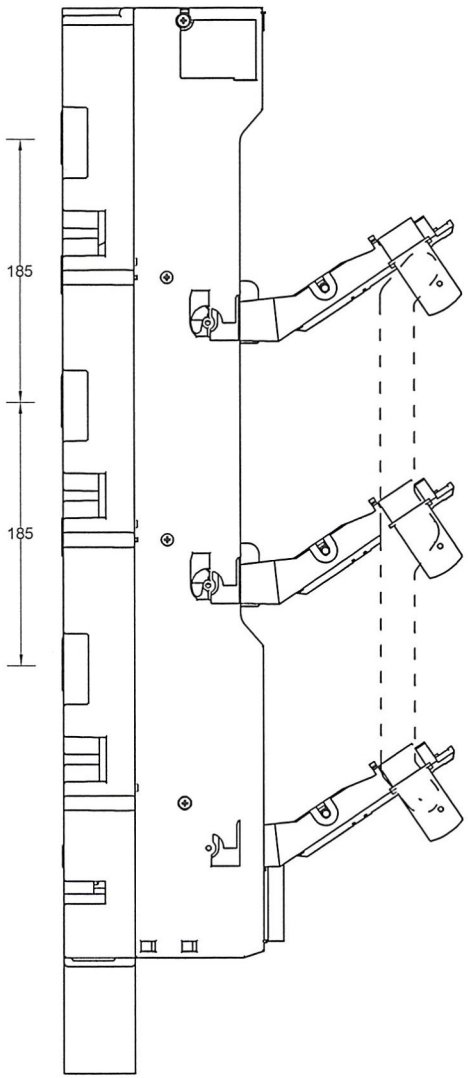
CEB Approved Specification
Chairperson Dist. Coordination Committee
28/10/2020

ALL DIMMENSIONS ARE IN MILLIMETERS

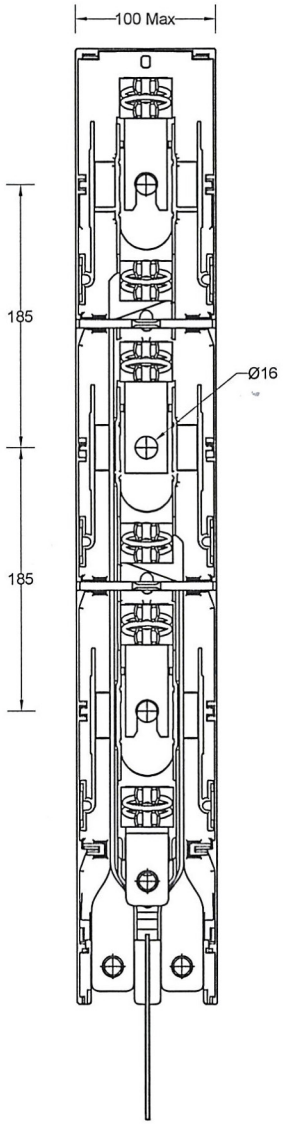
CEYLON ELECTRICITY BOARD	DISTRIBUTION STANDARDS & SPECIFICATIONS	SCALE : NOT TO SCALE
	OUT DOOR THREE PHASE FUSE SWITCH DISCONNECTOR	DRAWN : LALANI / EDITED : HARSHA
	DESIGNED BY / APPROVED BY	DATE : MAR - 2020
		DRG. NO : DS&S/2020/052/A
DISTRIBUTION COORDINATION BRANCH	EE (DC) / CHAIRMAN, SPECIFICATION COMMITTEE	CAD NO :



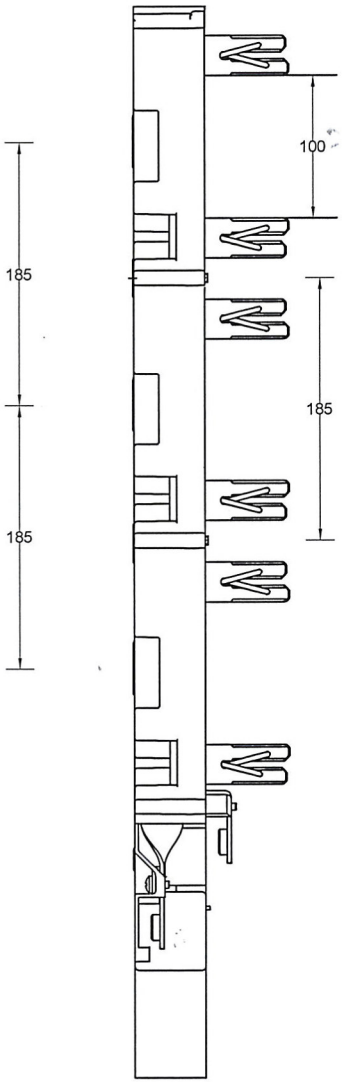
FRONT ELEVATION OF
FUSE SWITCH DISCONNECTOR



SIDE ELEVATION OF
FUSE SWITCH DISCONNECTOR



FRONT ELEVATION OF
FUSE BASE



SIDE ELEVATION OF
FUSE BASE

CEB Approved Specification
Chairperson Dist. Coordination Committee

CEYLON ELECTRICITY BOARD	DISTRIBUTION STANDARDS & SPECIFICATIONS	SCALE : NOT TO SCALE
	SCHEMATIC DIAGRAM OF VERTICAL TYPE FUSE SWITCH DISCONNECTOR	DRAWN : HARSHA
		DATE : MAR - 2020
	DESIGNED BY / APPROVED BY	DRG. NO : DS&S/2020/052/B
DISTRIBUTION COORDINATION BRANCH	EE (DC) / CHAIRMAN, SPECIFICATION COMMITTEE	CAD NO :

Annex- B1

SCHEDULE OF TECHNICAL REQUIREMENTS AND GUARANTEED TECHNICAL PARTICULARS

(HRC Fuse links with blade contacts and solid links – For item 1,2,3 and 4)

(CEB Requirements shall be filled by the procurement entity and information of the offer shall be filled by the manufacturer as applicable)

		Offered
1.	Name of Manufacturer	
2.	Country of manufacture	
3.	Model No./ Catalogue Ref. No.	
4.	Applicable Standards	
5.	Rated voltage V	
6.	Rated current A	
7.	Type of Size	
8.	Rated frequency Hz	
9.	Rated power dissipation W	
10.	Maximum Temperature Rise ^{0}K	
11.	Rated breaking capacity kA	
12.	Blade Contacts	
	a) Material used	
	b) Plating material	
	c) Length mm	
	d) Thickness mm	
13.	Whether a certified copy of ISO 9001:2015 or latest furnished with the offer?	
14.	Whether the entire Type Test Certificates in accordance with clause 6.3 furnished with the offer?	
15.	Whether the information requested in clause 7 furnished with the offer?	
16.	Whether Samples furnished with the offer?	

....

Signature of the Manufacturer and seal **Date**

I/We certify that the above data are true and correct

....

Signature of the Bidder and seal **Date**

CEB Approved Specification
Chairperson Dist. Coordination Committee
26/10/2020

Annex- B2

SCHEDULE OF TECHNICAL REQUIREMENTS AND GUARANTEED TECHNICAL PARTICULARS

(Fuse Bases for HRC Fuse links with blade contacts 5,6 and 7)

(CEB Requirements shall be filled by the procurement entity and information of the offer shall be filled by the manufacturer)

		Offered
1	Name of Manufacturer	
2.	Country of manufacture	
3.	Model No./ Catalogue Ref. No.	
4.	Applicable Standards	
5.	Rated voltage V	
6.	Rated current A	
7.	Type of Size	
8.	Rated frequency Hz	
9.	Rated Insulation Voltage kV	
10.	Rated short time withstand current/duration kA/s	
11.	Rated power acceptance W	
12.	Maximum Temperature Rise	
	(a) Contacts ^0K	
	(b) Terminals ^0K	
13.	Creepage distance	
	a) between phase to earth mm	
	b) between open contacts mm	
14.	Terminal size (cable socket size) mm^2	
15.	Distance between contacts mm	
16.	Whether a certified copy of ISO 9001:2015 or latest furnished with the offer?	
17.	Whether the entire Type Test Certificates in accordance with clause 6.3 furnished with the offer?	
18.	Whether the information requested in clause 7 furnished with the offer?	
19.	Whether Samples furnished with the offer?	

....

Signature of the Manufacturer and seal **Date**

I/We certify that the above data are true and correct

....

Signature of the Bidder and seal **Date**

CEB Approved Specification
Chairperson Dist. Coordination Committee
28/10/2020

Annex- B3

SCHEDULE OF TECHNICAL REQUIREMENTS AND GUARANTEED TECHNICAL PARTICULARS
(Fuse Switch Disconnectors – For item 8 and 9)

(CEB Requirements shall be filled by the procurement entity and information of the offer shall be filled by the manufacturer as applicable)

			Offered
1.	Name of Manufacturer		
2.	Country of manufacture		
3.	Model No./ Catalogue Ref. No.		
4.	Applicable Standards		
5.	Rated voltage	V	
6.	Rated current	A	
7.	Degree of Protection		
8.	Rated frequency	Hz	
9.	Rated Insulation Voltage	kV	
10.	Rated short time withstand current/duration	kA/s	
11.	Rated power acceptance	W	
12.	Maximum Temperature Rise		
	(c) Contacts	^{0}K	
	(d) Terminals	^{0}K	
13.	Creepage distance		
	c) between phase to earth	mm	
	d) between open contacts	mm	
14.	Terminal material		
15.	Terminal size (cable socket size)	mm²	
16.	Contact material		
17.	Power Frequency Withstand Voltage		
	(a) Phase To earth	kV	
	(b) Between open contacts	kV	
18.	Impulse withstand voltage		
	(a) Phase To earth	kV	
	(b) Between open contacts	kV	
19.	Rated Breaking Capacity at 0.65 pf and at 440V	A	
20.	Whether 3 pole or 1 pole independent operation possible?		
21.	Weight	kg	
22.	Type of mounting bracket		
23.	Galvanizing thickness	mm	
24.	Whether a certified copy of ISO 9001:2015 or latest furnished with the offer?		
25.	Whether the entire Type Test Certificates in accordance with clause 6.3 furnished with the offer?		

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Chairperson Standards Committee
28/10/2020

26.	Whether the information requested in clause 7 furnished with the offer?	
27.	Whether Samples furnished with the offer?	

....

Signature of the Manufacturer and seal **Date**

I/We certify that the above data are true and correct

....

Signature of the Bidder and seal **Date**

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28/10/2020
Chairperson Dist. Co

Annex – C

Non-Compliance Schedule

On this schedule the bidder shall provide a list of non-compliances with this specification, documenting the effects that such non-compliance is likely to have on the equipment life and operating characteristics. Each non-compliance shall be referred to the relevant specification clause.

Clause No.	Non-Compliance

....

Signature of the Manufacturer **Date**

I/We certify that the above data are true and correct

....

Signature of the Bidder and seal **Date**

CEB Approved Specification
Chairperson Dist. Coordination Committee
25/10/2020