SPECIFICATIONS OF REWIREABLE KIT KAT FUSES

1. SCOPE
This application cover the manufacture, testing at works and supply of porcelain rewireable kit kat fuses suitable for AC 3 phase 415 V 50 HZ solidly grounded neutral system.

2. WEATHER CONDITION:
The material used in construction of the fuse unit shall be suitable for use under following weather condition:-
I) Temp. Range 0 to 50 C
ii) Relative humidity 2% to 100%
iii) Altitude-upto 1000 Meters
iv) Use Outdoor, in dist. box or indoor in consumers premises.

3. RATED VOLTAGE AND FREQUENCY.
The fuses shall be suitable for continuous operation at AC 415 V and frequency 50 Hz.

4. RATED CURRENTS:
The rated currents of fuses units shall be 16/32/63/100/200 Amps.

5. APPLICATION STANDARDS:
I) IS: 2086/1993 with latest amendment for fuses upto 100 A &This specification.
ii) This specification for 200 A kit kat fuses.
iii) GEB (Now GUVNL) drawing Nos. Tech-272,268,269,271 & 322 (Rev.II)

6. GENERAL CONSTRUCTION REQUIREMENT OF KIT KAT FUSES:

6.1 MATERIALS:
This rewireable fuses units shall be made of ceramic which shall be of sand fine grain homogenous non-porous chemically insert and high electrical and mechanical strength and shall be thoroughly verified and smoothly glazed. It shall be non-ignitable/ The porcelain and glaze shall be white or cream in colour. The glaze shall cover atleast those surfaces which are exposed when the ,fuses have been mounted in the intended manner. The mounting surface may be left unglazed. The materials should not have any defect such as –

I) Crazing : A hairline crack in glaze of ceramic material.
II) Dunt : A hair line fracture extending through the body and the glaze and caused by strains set-up in the process of manufacture of ceramics materials.
III) Projection : A raised imperfection, projecting more than 0.75 mm above the Surface of the ceramic material.
IV) Water : The ceramics material shall not absorb more than absorption 2% of its weight of water when broken and tested for.

6.2 The design and dimension of the fuses shall be either in accordance with the drawing No. Tech-272,268,269,271 & 322 (Rev.II) OR as per relevant IS – 2086 -1993 for 16 A, 32A, 63 A, 100 A & 200 A respectively.

6.3 PROTECTION:
The carrier and fuse base when installed in the intended manner shall have all live parts so protected as to prevent inadvertent contact with such live parts.

6.4 HANDLING GRIP:
The fuse carrier shall be provided with a handle or grip and shall be shaped in acceptable manner so that it will be easy to withdraw the carrier without use of any tools and without danger to any L.M. or operator.
6.5 METAL PARTS:
All metal parts shall be protected against corrosion by suitable methods.

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6.6 FUSE BASE:

6.6.1. The fuses base shall be provided with two fixing holes for fixing the fuse base by means of screwier bolts.

6.6.2. The fuse base shall have contacts for suitably engaging with the contacts of the fuse carrier rigidly under any condition. The contacts shall be made out of such a metal which will not lose its electricity due to heating of the contracts on full load with 20% overload current or heat generated and required pressure is maintained even after repeated engagements and disengagement. The contact for rating 63 A and above will also have extended strips for fixing cable lugs by means of bolt.

6.6.3. Live parts on the underside of the fuse base for surface mounting shall be either covered by a shield or barrier of insulating materials or be counter sunk not less than 3mm below the surface of the base and covered with water proof insulating sealing compound which will not deteriorate or flow at a temp. lower than 100 degree C or on full load current with 20% overload or blowing of fuse under short circuit condition or shall have clearance of not less than 6.0 mm for 16A and 32A and 9mm for 63A, 100A and200A size from the mounting surface and reliably prevented from loosening.

6.7 FUSE CARRIER:

The fuse carried shall have contacts suitable for engaging with fuse base contacts. They shall be provided with suitable terminals for the connection of the fuse elements. The fuse carrier shall be so constructed that it is capable of being reversible for introduction into the fuse base. The contacts shall be made out of the metal which will not loose its elasticity on account of heating of the contacts on full load with 20% overload conditions or heating due to blowing of the fuse element due to short circuit and
required pressure is maintained and even after repeated engagement and disengagement.

6.7.2 Live parts of the fuse carrier shall be covered either by a shield for barrier of insulating materials or be counter sunk not less than 3 mm below surface of the base and covered with water proof insulating sealing compound which will not deteriorated or flow at temp. lower than 100 C.

6.8 The asbestos cloth to be provided in fuse base shall be fire proof insulating and of sufficient length width and thickness.

6.9 SPRING FOR BASE PHOSPHOR BRONZE CONTACT (For 200 Am KK FUSE only)
This should be round/elliptical made from high quality spring steel sufficient to maintain uniform pressure on the contact surface when fuse carrier is fitted. The spring shall be of sufficient width and having 1 mm thickness.

6.10 SCREWS:

I) Screws upon which the general assembly of the fuse base and carriers terminals and contacts depend shall be prevented from loosening or backing out buy lock, washers, stacking or other reliable means.

ii) If screws used in the assembly of a fuse are loosened or removed in order to install the fuse elements or to connect the fuse into a circuit they should be thread into metal and shall be provided with washers.

6.11 CURRENT CARRYING PARTS:
I) Current carrying parts shall be of robust construction and capable of carrying their rated current without exceeding the temp. rise limits clause 4.2.1 of IS specification 2086-1993. i.e. 55 degree centigrade for rating 16amps to 100amps & 65 degree centigrade for 200 amps kit kat fuse. II) Iron and steel parts shall not be used for current carrying parts except as clamping device or pressure such as punching screws, clamps or wire binding screws and nuts.

6.12 CONTACTS:
The contacts of the fuse base, fuse carrier, terminal blocks/strips shall be as under:

Sr. no.	Description	For 16/32/63A& 100 A fuse. K.K. Fuse.	For 200 A
1	Fuse carrier contacts (Male Contacts)	Tinned copper	Tinned copper
2	False base contacts (Female contacts)	Phosphor Bronze	Phosphor Bronze
3	Terminal block/strips	Tinned copper	Tinned copper

The current carrying screws and washers shall be of tinned brass while the screw,washers not carrying current shall be M.S. Galvanized M.S. Electro Galvanized bolt and nut with one plain washer and one spring washer suitable for 70 mm_2, 150 mm_2 & 185 mm_2 cable lugs shall be provided with extended strips for 63A, 100A and 200A fuse respectively.

6.13 Chemical composition of the contacts.
Electrolytic copper (tinned phosphor bronze (Tinned) use for contacts of KK fuse shall confirm to various IS as stated below.

a) ELECTROLYTIC COPPER.
Copper strips used for contacts of kit kat fuse should confirm to IS:1897/1983 with latest amendments. The material shall be of electrolytic tough pitch (ETP) grade with minimum 99.9% of copper & silver as per table I of IS191 part IV.

b) PHOSPHER BRONZE
The phosphor bronze used for contacts of KK fuse shall confirm to any of the grade-I, II or III given in IS: 7814/1985 (with latest amendments). The requirement of metal composition should be as per IS-7814.
C) BRASS
It shall confirm to grade LCB1/DCB2 of IS-1264/1997 (with latest amendment)/IS 4101/1977 with latest amendment). The metal composition for casting shall be as per IS 1264 and that of brass sheet, as per IS 410
6.14 The contact fixing screw holes in fuses shall be fitted with insulating material fully into the surface of the kit kat fuse carrier.

7. Embossing:
7.1 Every fuse carrier shall be clearly and indelibly embossed with the following information.
I) Rated Current
ii) Rated voltage
iii) Size of fuse wire
iv) Manufacturer's name/Trade mark.
v) UGVCL
7.2 Every fuse base shall be clearly and indelibly marked with the following.
I) Manufacturers name/Trade mark.
ii) UGVCL

8.0 TYPE TEST CERTIFICATES:
8.1 The firm has to submit type test certificates for test conducted on their own brand name make for KK fuses for all the tests as per cl.no. 9.0.3.1 Of IS: 2086/1993 (with latest amendment) carried out at CPRI Bhopal/Bangalore/ERDA, Baroda or Govt. Recognized laboratory.
8.2. The firm has to submit chemical composition certificates for each contact used in each rating of KK fuses offered for sample tested at ERDA Baroda or any Govt.Recognized laboratory as per relevant ISS.
8.3 The above type test certificates and metal composition certificates shall be complete viz. for all tests and for all parts and submitted along with the offer. Incomplete/delayed test certificates and metal composition certificates shall not be considered.

9.0 ACCEPTANCE LOT:

9.1 SAMPLING CRITERIA:
The Number of fuse carriers and fuse bases to be selected from the lot shall be in accordance with Appendix-B of IS: 2086/1993. However, the lot size shall constituted of all the fuse carriers and fuse bases of the same ratings.

9.2 ACCEPTANCE TEST.

The fuse carriers and fuse bases selected as per 9.1 (of this specification) shall be subject to the acceptance test in following order.
I) Visual examination (ii) Dimensional check (iii) Test for Mechanical endurance (iv) Test for withdrawal force (v) Test for temp. rise (vi) Insulation resistance test (vii) High voltage test (viii) Temp. Cycle test.
N.B.: For purpose of temp. cycle test and temp. rise test one sample from every batch of
10000 (or less) for each current rating has to selected and tested.

10.0 ROUTINE TEST:

The routing test certificate duly signed by the testing engineers of the firm clearly stating that the following routine tests has been conducted by him on each fuse unit, shall be kept ready and submitted to the inspecting officer prior inspection of lot offered and testing of samples.
I) Visual examination
ii) High voltage test.

11.0 VERIFICATIONM OF METALIC COMPOSITION OF CONTACTS:

11.1 UGVCL reserves the right to draw the samples of metallic parts of kit kat fuses for verifications of metallic composition at the time of manufacture from the lot offered for inspection. In a addition to this, the samples will be drawn from the lots received by the consignees for verification of metallic composition. In the event the metallic composition does not confirm to our specifications. The DGVCL reserves the right to cancel the order at the cost and risk of the supplier.

12.0 PACKING:

The fuses shall be packed in suitable manner in good quality thermo plast container to avoid breakage or loosening of components marking stamp shall be a fixed on each box containing the KK fuses.

Date **Signature & Seal of the Tenderer**

UGVCL
Uttar Gujarat Vij Company Ltd.

GUARANTEED TECHNICAL PARTICULARS

Manufacturer's Name & Address:

Technical information & guaranteed information for supply of Kit Kat fuses.

PART-A

BIDDER HAS TO CONFIRM FOLLOWING IMPORTANT REQUIREMENT

Sr.	Particulars	Confirmation
1	2	3
2	General construction & requirement of kit kat fuse shall be as per UGVCL specification Cl. No. 6 DRG & IS No. 2086/1993.	Yes
3	Rated voltage shall be 415 volts	
	Rated current of kit kat shall be	
	16A	Yes
	32A	Yes
	63A	Yes
	100A	Yes
	200A	Yes
4	Embossing every fuse carrier shall be clearly & indelibly embossed with the following.	
	I) Rated current	Yes
	ii) Rated voltage	Yes
	iii) Size of fuse wire	Yes
	iv) Manufacturer's name or trader name	Yes
	v) UGVCL	Yes
5	Every fuse base shall be clearly & indelibly embossed with the following	
	I) Manufacturer's & Name/Trader name	Yes
	ii) UGVCL	Yes

PART-B:

BIDDER HAS TO FURNISH BELOW DETAILS ABOUT MATERIALS

1. Manufacturer's trade name

Signature & seal of tenderer

Date **Signature & Seal of the Tenderer**

UGVCL
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PART-C

BIDDER HAS TO ENCLOSE FOLLOWING DOCUMENTS & HAS TO CONFIRM FOR THE SAME

Sr.No.	Particulars		Confirmation
1	2		3
1	Type test report as per IS-2086/1993 with the latest amendment carried out at CPRI Bhopal/Banglore ERDA, Baroda or any other Govt. approved laboratory for the following size.		
	16A		submitted
	32A		submitted
	63A		submitted
	100A		submitted
	200A		submitted
2	The chemical composition report of metal parts as per specification Cl.No. 6.13 for following size		
	16A		submitted
	32A		submitted
	63A		submitted
	100A		submitted
	200A		submitted
3	Two Nos. of sample as per GEB's drawing as under to be sent with tender.		
	Rating	Drg. No.	submitted
	16 A	Techx272	submitted
	32 A	Techx268	submitted
	63 A	Techx269	submitted
	100 A	Techx271	submitted
	200 A	Techx322 Rev.2	submitted
4	List of plant & machinery submitted		submitted
5	List of testing equipment submitted		submitted
6	List of orders pending/executed at least for past two years for the item offered.		
	a) with GEB (now GUVNL)		submitted
	b) with the purchase other than GEB (now GUVNL)		submitted

PART-D

BIDDER HAS TO MENTION BELOW DEVIATIONS IF ANY QUOTING RELAVANT CLAUSE OF SPECIFICATION

Date **Signature & Seal of the Tenderer**