

# REQUEST FOR QUOTATION



**BHARAT HEAVY ELECTRICALS LIMITED**  
 Electronics Division  
 PB No. 2606, Mysore Road Bangalore - 560026  
 INDIA

RFQ NUMBER:  
AKSPROP144

Due Date/Day: 19.02.2026 THU  
Time : 13:00 HRS

RFQ DATE :  
05.02.2026

MMI:PU:RF:003

(address for communication) :

(for all correspondence)

Purchase Executive : ABHISHEK  
 Phone : 26998102  
 Fax : 00918026989215  
 E-mail: singh.abhishek@bhel.in

1)This RFQ is for entering into Rate contract (RC) with BHEL for the tendered item. Validity of the RC will be 1 year from the award of rate contract. Firm orders will be placed during the tenure of rate contract. Prices will remain firm till the validity of RC or till the completion of supplies against the Purchase Orders placed against this rate contract whichever is later. Please note that these quantities are projections based on the current business scenario and expected orders from customers. In the eventuality of business not coming through, BHEL is not obligated to exhaust the ordering of RC quantities.

SI No.	Description	Qty	Unit	Delivery qty	Delivery Date
1	TI0668104350 FUSEHOLDER SI DIN 110 630A * HSN/SAC : 8536 [REDACTED]  FUSEHOLDER SI DIN 110 630A [REDACTED] As per PSPEC PS4452649 Rev No 00	900	NO	900	20.05.2026
2	TI0668104368 Semiconductor Fuse, 315A * HSN/SAC : 8504 [REDACTED]  Semiconductor Fuse 315A 1250V [REDACTED] As per PSPEC PS4452649 Rev No 00	900	NO	900	20.05.2026

Total Number of Items - 2

- 1.
- 2.

**NOTES:**

1. This RFQ is governed by:
  - a) INSTRUCTIONS TO BIDDERS/SELLERS and GENERAL CONDITIONS OF CONTRACT FOR PURCHASE available at <http://edn.bhel.com> (**RFQ-PO Terms & Conditions**)
  - b) Any other specific Terms and Conditions mentioned.

\* The HSN/SAC no mentioned against the line items in the RFQ are indicative only.

For and On behalf of BHEL.

ABHISHEK  
 Control Equipment

## 1. SCOPE

The Pre-Qualification Requirement document specifies the requirements to be met by the vendors (hereafter called Bidder) who wish to participate in the tender for supply of **Semiconductor Fuse with Fuse holder for rolling stock applications**.

This PQR should be read in conjunction with the Purchase Technical Specification **PS4452649 R00 dtd 11.05.2019**.

## 2. CREDENTIAL

- a) The Bidder should be Manufacturer or authorized dealer / supplier of – **Semiconductor fuse with fuse holder** used in Rolling Stock applications. Documentary proof like relevant POs / invoice copies, valid authorization certificate etc shall be provided along with the offer.
- b) The Rolling Stock Applications under consideration shall include Locomotive, EMU, MEMU, Metro Trains, High Speed Trains, Train sets, Inspection Cars and Special Track Machines.
- c) For the vendors outside India, documentary proof for usage of the product in rolling stock applications shall be submitted. Acceptance of such certification shall be at BHEL's discretion.
- d) The Bidder should not be under the category of "hold" or "blacklisted" by any of the BHEL units/ any Govt of India PSU/ Govt of India/ statutory bodies of any state Govt as on date of bid submission. A declaration to this effect shall be submitted along with the offer.

## 3. QUALITY SYSTEM

- a) The manufacturer should have valid ISO 9001:2015 or latest certification covering the manufacturing and testing of the subject item
- b) The manufacturer should possess a clearly laid down quality Assurance Plan for the product covering the following aspects  
Organization Chart, clearly indication the quality control set up  
Qualification of key personnel and officials deployed in the quality control cell.
- c) Process Flow Chart indicating process of manufacture for an individual product or for a family of products, if the process is same.
- d) Quality Assurance System – Inspection and Testing plan to cover
  - Incoming material
  - Process control
  - Product control
  - System control
  - Testing facility
- e) Stage inspection details shall include the inspection procedure, inspection parameters, method of testing/ test procedure, sample sizes for destructive & non-destructive testing etc.
- f) Calibration scheme and status of calibration of test equipment  
The process, testing and measuring equipment shall be duly calibrated by approved agency and the validity of calibration should be current.

#### **4. GENERAL REQUIREMENTS**

- a) It is preferred that the bidder is the manufacturer of this item. If the bidder is importing some portion of the components, then minimum value addition in India shall be 20%. Bidder to confirm this in the offer. Value addition less than 20% is not acceptable. A declaration to this effect shall be submitted along with the offer.
- b) The technical bid of bidders, which qualify technically but are not approved for the subject item by the Customer Approving Authority, shall be referred by BHEL to the customer Approving Authority for approval with intimation to the bidder. Consequent to the decision of Customer Approving Authority, the bidder shall be added to the vendor list of the subject item for future tenders. Concurrently BHEL shall consider placing developmental order on the bidder after accessing the capability of the bidder to manufacture / develop the subject item. However, BHEL shall treat the offer as “Not meeting” Pre-Qualification Criteria for the subject tender.
- c) The Customer Approving Authority shall be RDSO/CLW/BLW/PLW/ICF/RCF/MCF or any other agency as designated by the Customer.
- d) The bidder should possess a valid type test report, not older than five years, as per relevant standards mentioned in the specification with respect to time during the bid submission in case of catalog items. In case of custom made items, a bidder can submit the type test report of an item of similar or higher rating with a declaration for conducting the type test in case of award of order or developmental order. The bidder can also submit the test reports conducted in their own facility with the document of their lab accreditation. However, BHEL reserve it's right to insist on conducting the Type test again in a laboratory of it's choice.
- e) For the bid of vendors already qualified and appearing in BHEL's source list, the requirement of type test report and proof of supply shall not be applicable.

#### **5. DOCUMENTATION TO BE SUBMITTED ALONG WITH OFFER**

- a) Documentary proof for experience as per clause 2.a
- b) Clause by Clause compliance to the technical specification
- c) Declaration regarding status as per clause 2.d
- d) Declaration on MII (Make in India) as per clause 3.a
- e) Declaration for conducting Type Test as per clause 3.d



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**PURCHASE SPECIFICATION FOR  
Semiconductor Fuse and Fuse Holder  
GROUP: TRACTION ENGINEERING**

P.S NO. : PS4452649

REV. NO: 00

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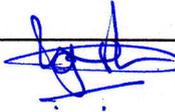
**REVISION HISTORY SHEET**

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REV. NO	DATE	NATURE OF CHANGE	REASONS	PREPARED BY	APPROVED BY
00	11.05.2019	FIRST ISSUE	--	VNSSRM KRISHNA V	SHEKAR R

THIS DOCUMENT IS A SPECIFICATION CUM DATA SHEET. VENDOR TO GIVE CONFIRMATIONS AND DATA AS REQUIRED AND SUBMIT THE SAME TO BHEL / EDN, BANGALORE. ANY DEVIATIONS TO THIS DOCUMENT TO BE BROUGHT OUT CLEARLY BY VENDOR.

REVISIONS 00 DT: 11.05.2019

APPROVED BY:  R.SHEKAR

PREPARED BY:

  
VNSSRM KRISHNA V

ISSUED BY

TRACTION ENGG

DATE

11.05.2019



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**PURCHASE SPECIFICATION FOR  
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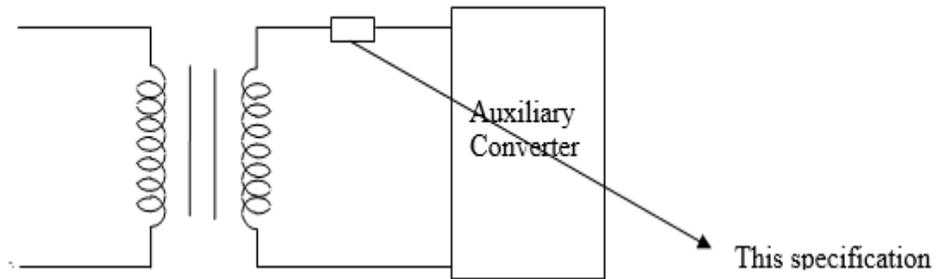
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**SPECIFICATION FOR Semiconductor Fuse and Fuse Holder**

**Brief description**

Auxiliary converter is connected to the secondary of the traction transformer through a fuse which protects the Auxiliary converter in case of faults. Simplified scheme of connection of Auxiliary converter is Fig 1. This document gives the specification of fuse and fuse holder used in the circuit.



**Figure 1: Simplified main power scheme**

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**PURCHASE SPECIFICATION FOR  
Semiconductor Fuse and Fuse Holder  
GROUP: TRACTION ENGINEERING**

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## 1. Detailed Specification

### 1. Electrical Parameters for Fuse

- |    |                           |   |                           |
|----|---------------------------|---|---------------------------|
| 1. | Ampere Rating             | : | 315 A                     |
| 2. | Rated Voltage             | : | 1250 V                    |
| 3. | Melting I <sup>2</sup> T  | : | <= 15000 A <sup>2</sup> S |
| 4. | Clearing I <sup>2</sup> T | : | <=122000 A <sup>2</sup> S |
| 5. | Loss                      | : | 75 Watt                   |
| 6. | Type                      | : | DIN 110                   |

### 2. Electrical Parameters for Fuse Holder

- |    |                 |   |        |
|----|-----------------|---|--------|
| 1. | Maximum Voltage | : | 1400 V |
| 2. | Rated Current   | : | 630 A  |

### 3. Mechanical Requirements

- |    |                              |   |   |
|----|------------------------------|---|---|
| 1. | Height                       | : | Refer to Fig-2  |
| 2. | Width                        | : | Refer to Fig-2  |
| 3. | Depth                        | : | Refer to Fig-2  |
| 4. | Fuse Connection Terminals    | : | M10   |
| 5. | Fuse Base Mounting Terminals | : | M8  |
| 6. | Terminals                    | : | Tin plated copper   |
| 7. | Rating Plate/Marking         | : | As Per Specification  |
| 8. | Vibration                    | : | Sinusoidal vibrations carried out at ambient temperature in three axes of the holder.<br>Spectrum:<br>1st segment (2 to 16 Hz) constant displacement x = 5 mm peak.<br>2nd segment (16 to 250 Hz) constant acceleration = 5 g peak. |

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**2. Standards**

Standard	Description
EN50125-1	Environmental conditions
EN50124-1	Railway applications Isolation co-ordination, Basic requirements.
IEC60077	Electric equipment for rolling stock
IEC61287	Power converters
IEC61376	Creepage and clearance
IEC61373	Shock and vibration test

**3. Ambient conditions / operating conditions**

Description	Value	Unit	Notes
Operation	-25..+75	°C	
Temperature distribution over the year	+75	°C	10 days/year
	+65	°C	20 days/year
	+55	°C	90 days/year
	+40	°C	100 days/year
	< +40	°C	130 days/year
Storage	-25..+70	°C	
Average year temperature	+ 40	°C	
Relative humidity	< 95	%	During app 3 - 4 months (rainy season) per year frequent condensation can occur
Altitude	<1200	m	
Pollution levels			
Operation in coastal areas			
Maximum PH	8.5		of water damp
Max. concentration of sulphate	7	mg/litre	of water damp
Max. concentration of chlorine	6	mg/litre	of water damp
Maximum conductivity	130	µS/cm	of water damp
Operation in desert terrain			
Dust content in air	1.6	mg/m3	

**4. Reliability, availability, maintainability and safety**

Description	Value	Unit	Notes
Design life	30	years	Expected lifetime: 30 x 8640 = 260000 hours
Failure rate	50	FIT	
Maintenance			To be defined by supplier
Safety			The risk of explosion due to over voltage, ageing, loss or other reasons should be minimized

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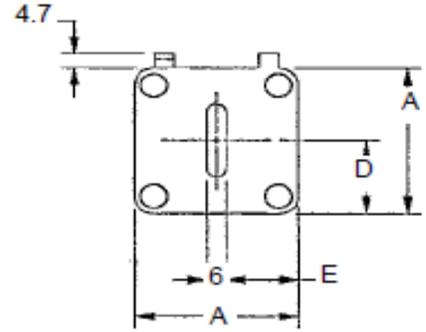
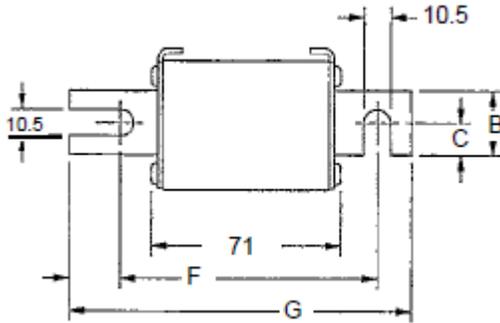
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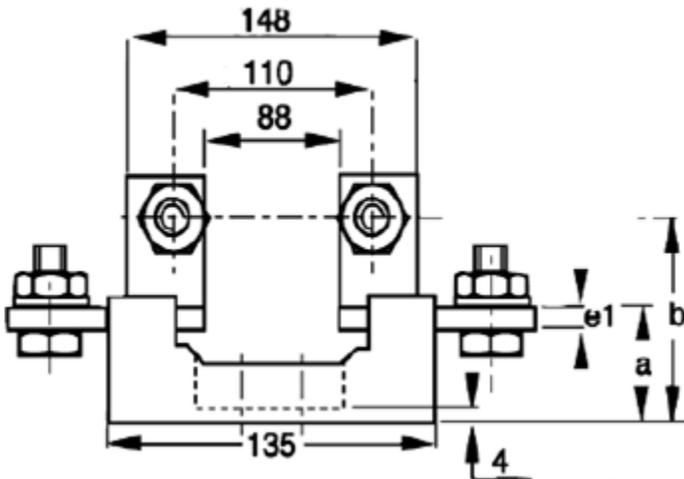
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**5. Dimensional details**



Marking	Dimensions in mm
A	60
B	32
C	16
D	32
E	27
F	100.4
G	133.4

**Fuse**



Marking	Dimensions in mm
a	40
e1	5
b	68

**Fuse Holder**

**Fig 2: Typical Dimensional Drawing**

**Note: The dimensions shown above are typical values, suppliers need to submit the detailed drawings showing the mounting dimensions in the technical offer**

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## 6. Testing

All the tests to be performed on prototype as per IEC 60269-4

## 7. Rating plate

The following information shall be given on the rating plate of each Fuse unit:

1. Manufacturer
2. Identification number and manufacturing date
3. Rated Current = A
4. Rated Voltage = V

## 8. Documentation

1. Dimensional Drawing
2. Type test Procedure, Type test Report
3. Routine test Procedure, Routine test Report
4. Datasheet

## 9. Acceptance

1. Type test report
2. Visual Inspection
3. Equipment shall be packed in a manner suitable for delivery and storage at the appointed delivery address. Transport packaging will provide adequate protection against accidental damage during normal handling.

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