

# BHARAT HEAVY ELECTRICALS LIMITED

TIRUCHIRAPPALLI-620 014

Fuel Systems/PE (FB)



## Technical Purchase Specification for CATALYST SEALING ROPE IN SCR

Specification No.: **TSR: 044**

Revision No: 00

<i>Rev. No.</i>	<i>Rev. Date</i>	<i>Clause</i>	<i>Description</i>	<i>Prepared</i>	<i>Checked</i>	<i>Approved</i>

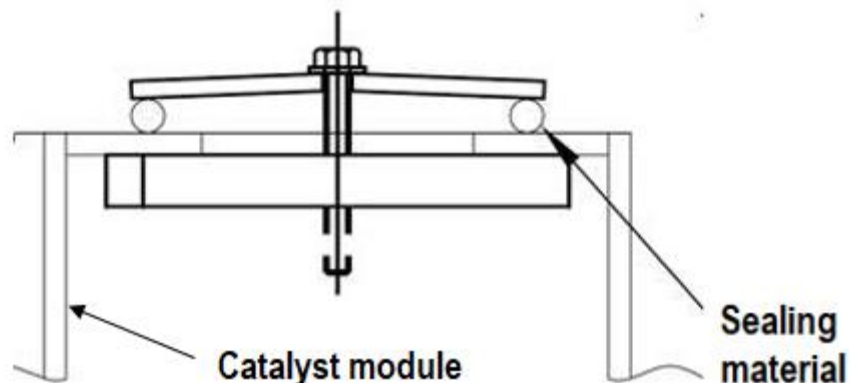
	<i>Name</i>	<i>Signature</i>	<i>Date</i>
<i>Prepared</i>	<i>Sankar G</i>	<i>sd.</i>	<i>23.04.2022</i>
<i>Checked</i>	<i>M Noorul Fazil</i>	<i>sd.</i>	<i>23.04.2022</i>
<i>Approved</i>	<i>Srinivasu Arugula</i>	<i>sd.</i>	<i>23.04.2022</i>

## 1.0 SCOPE

- This specification defines the minimum requirements for the design, engineering documentation, manufacture, testing, shipment and delivery of materials along with the technical direction for installation of sealing material in the Selective Catalytic Reduction (SCR) reactor. The vendor is solely responsible for proper design, engineering and delivery of the sealing material. Product furnished shall be the Vendor's standard and proven design.
- In the event of conflicts between codes, standards, this specification and the customer specifications (if applicable), the more stringent requirements shall apply and the conflict between these shall be submitted to BHEL in writing. Vendor shall comply with all customer specifications (if applicable) unless BHEL approves the exceptions requested by vendor in writing.
- No deviation or exception from this specification shall be permitted without the written approval of BHEL. Intended deviations shall be separately listed by the vendor and supported by reasons for consideration of BHEL.
- Compliance with this specification shall not relieve the vendor of the responsibility of furnishing the items of proper design, materials and workmanship to meet the specified operating conditions.

## 2.0 INTRODUCTION

The sealing material offered shall provide effective sealing on light metal flanges or where limited bolting force is available in the SCR reactor as shown in Figure 1. The details of the sealing material are furnished in the technical information sheet.



**Fig 1. Typical sealing material arrangement in a SCR reactor**

## 3.0 DETAILED REQUIREMENTS OF PRODUCT

The necessary process conditions such as design temperature, size, specification and other necessary information related to the sealing material are furnished in the technical information sheet.

## 4.0 PERFORMANCE GUARANTEES

The product provided by the vendor shall operate in accordance with the performance data in the technical information sheets. Should it be determined during this period that the product has failed, or is failing to achieve specified performance, the Vendor shall be obligated, as a



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condition of warranty, to take whatever steps are necessary and/or required to correct the non-performance, all at vendor's cost. The product shall meet all applicable code requirements so that all required inspections are passed and permits obtained.

## **5.0 QUALITY ASSURANCE AND QUALITY CONTROL (QA & QC)**

### **5.1 Quality Control**

The supplier must include in the supply a proven quality assurance system that will ensure the quality of the sealing material. The quality control system must follow ISO 9001 guidelines.

### **5.2 Quality assurance**

The supplier shall be responsible for providing the necessary Quality Control procedures, maintaining continual surveillance and inspection activities during the entire periods of the Fabrication and Testing. Inspections report and tests are to be provided to BHEL during the fabrication period and before shipment of the sealing system.

## **6.0 DOCUMENTS TO BE FURNISHED WITH THE TECHNICAL OFFER**

- ❖ Product literature and drawings (if any) in support of the offer shall be submitted with the offer.
- ❖ Signed copy of this technical specification / No deviation certificate.
- ❖ Filled in technical information sheet and vendor datasheets.

## **7.0 DOCUMENTS TO BE FURNISHED AFTER AWARD OF CONTRACT**

1. Packaging procedure detailing the list of components shall be dispatched individually with identification and with details of preservation and storage.
2. Warranty certificate shall be furnished by the vendor.

## **8.0 FINAL TESTS AND ACCEPTANCE**

The sealing material shall be tested at the vendor's works together with BHEL's representative to demonstrate conformance to the specification and functioning. The following test shall be performed:

1. Visual test and complete product check-up.

## **9.0 GENERAL**

- a) The language used shall be "English only" in offer, O & M manual, Labels, Drawingsetc.
- b) For product and other special requirements, refer technical information sheets to this specification.



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## 11.0 TECHNICAL INFORMATION SHEET FOR SEALING MATERIAL

**BHEL Material Code: L17281SR20005001**

**BHEL PO NO and Date:**

**VENDOR NAME:**

	DESCRIPTION	BHEL REQUIREMENT	VENDOR CONFIRMATION
1.1	Type of sealing material supplied	Fiberglass rope	
1.2	Application	For sealing system of Selective Catalytic Reactor (SCR) part of Steam Generator	
1.3	Purpose	To prevent leakage of flue gas and ash into the gaps between the catalyst module	
1.4	Service Temperature	To withstand 500 °C (Continuous)	
1.5	Service medium	Hot flue gas containing ash + ammonia	
1.5	Construction	Manufactured with inorganic refractory oxides-based braided fiberglass yarn	
1.7	Material properties	a) Shall be high temperature resistant as mentioned in Sl. No. 1.4 in addition to withstanding erosion due to ash. b) Material shall be asbestos free c) Density of the material	
1.8	Size and Shape	19 mm round	
1.9	Packing	Material shall be packed in polythene bag with material specification slip inside	
		<b>BHEL</b>	<b>VENDOR</b>
	Prepared	Balaji D	
	Checked & Approved	Srinivasu Arugula	

Read along with General specification for Catalyst sealing in SCR TSR:044-Rev00

## Technical Pre-Qualification Requirement (PQR) for Fiberglass rope

1. The vendor shall be an established **Fiberglass rope** supplier and having adequate Engineering, Manufacturing, testing and servicing facilities and shall furnish technical backup documents in proof for above requirements. Offers from **authorized representative of OEM is also acceptable**. However, the above said conditions shall apply for OEM and backup documents shall be submitted in proof of the same. In addition, an authorization letter from the OEM shall be submitted as a proof of representation of the OEM.
2. The vendor shall have experience of having supplied **Fiberglass rope** as per the technical specification for boiler/refinery/SCR/Process plants or application of similar severity. Supply reference list with details of PO, PO date, customer name.
3. The **Fiberglass rope** offered shall be from the existing regular supply range of the vendor. Vendor shall provide the product catalogue.
4. Proven track record is required. Minimum One end user certificate for the satisfactory operational performance of their products supplied.

**(Or)**

Successfully executed two POs for same item, meeting the subject technical specification requirement mentioned in the enquiry.

5. In case of ordering, the Vendor shall have the responsibility for the following and same to be confirmed point wise.
  - i) Vendor should have the component replacement responsibility in case of defect / failure.
  - ii) Experts from Vendor's side shall associate in commissioning activities at site, if required.
  - iii) Vendor should ensure the product performance during erection & commissioning and ensure performance guarantee.
6. Backup document checklist to meet PQR to the fullest satisfaction of BHEL:

Clause	Documents acceptable	Check list
1	i) ISO or Other third Party certification about the engineering, manufacturing, testing and servicing facilities in the name of supplier/OEM as applicable. The certificate shall be specific for the product quoted by the vendor. ii) List of manufacturing, testing and servicing facilities available (like machinery/equipment) in the letterhead of supplier/OEM as applicable.	<input type="checkbox"/>
2	Supply reference list with details of PO, PO date, customer name, application severity/type in the form of a table	<input type="checkbox"/>
3	Product Catalogue in the name of supplier/OEM as applicable	<input type="checkbox"/>
4	Min. one end user certificate (or) Two POs in the name of supplier/OEM as applicable	<input type="checkbox"/>
5	Signed copy of this technical PQR document	<input type="checkbox"/>

**OEM signature and seal with Date**

**Vendor signature and seal with Date**

**(If applicable)**

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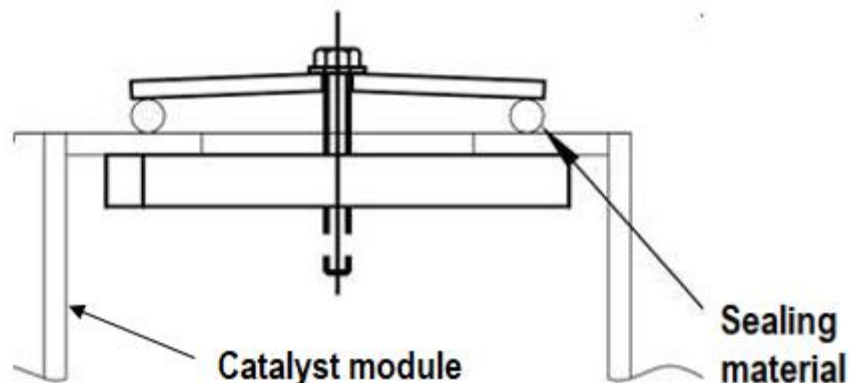
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