



S.No. 81

GOVERNMENT OF INDIA: MINISTRY OF RAILWAYS
RESEARCH DESIGNS & STANDARDS ORGANISATION
MINISTRY OF RAILWAYS
MANAK NAGAR, LUCKNOW – 226 011.

**EXPRESSION OF INTEREST (EOI) No. CARR-SS-02(SD)-2013 FOR
DEVELOPMENT OF SOURCES & SPECIFICATIONS**

RDSO is the sole Research Design and Standards Organization of Indian Railways, dedicated to create & adopt technology solutions for Indian Railways.

2. Carriage Directorate of RDSO is dealing with design and development of various items for coaching stock and is interested in development of:
 - A) Sources for "Self-lubricating Polyester Resin Composite based wearing Piece for Side Bearer for use in ICF Type BG Mainline, EMU/DMU Coaches" to RDSO Spec RDSO/2008/CG – 06 (Rev.-1).
 - B) Specification for following items:
 - i) Development of Fire Detection cum suppression system for AC Coaches.
 - ii) Development of Fire Detection cum suppression system for non AC Coaches.
 - iii) Development of Fire extinguishers for AC & non AC Coaches.
3. Firms /Organizations who have enough experience and capabilities in the field and have ISO certificate and are interested in developing and supply of above said items enlisted under para 2 A, are requested to apply only through online vendor registration system of RDSO with a hard copy to Director /SS/Carriage/RDSO. The path is <http://www.rdsso.indianrailways.gov.in> - Vendor Interface - Vendor registration, for carriage items or the web link is http://www.rdsoga.org/qamv/Vendor_Application_Form_next.aspx. Firms should also submit a clause wise compliance of specifications. In case of any deviations, the same should be brought out clearly.
4. For development of Specifications for items enlisted under para 2 B, functional requirements for these items is enclosed herewith as Annexure-I, II & III respectively. The interested firms/organizations are requested to submit details in the prescribed format attached herewith on or before 30.01.2014 on the address mentioned below:

Contact Address:

Director (SS),
Carriage Directorate, Annexe I Building,
Research Designs & Standards Organization (RDSO),
Ministry of Railways, Manak Nagar, Lucknow – 226 011,
Uttar Pradesh, India
Mob. No. 09794863048
BSNL Fax No. 0522 – 2450679, 0522 – 2465708
Email address: edcar.rdsso@gmail.com, dirssrdso@gmail.com

- Enclosure:
1. Proforma for response
 2. Annexure–I: Functional Requirements for, "Development of Fire Detection cum suppression system for AC Coaches".
 3. Annexure–II: Functional Requirements for, "Development of Fire Detection cum suppression system for non AC Coaches".
 3. Annexure–III: Functional Requirements for, "Development of Fire extinguishers for AC & non AC coaches".

FORMAT FOR LETTER OF RESPONSE

Respondents Ref No.:

Date:

Executive Director (Carriage)
Room No: 2
Carriage Directorate, Annexe I Building
Research Designs & Standards Organization
Ministry of Railways
Manak Nagar
Lucknow – 226 011
Uttar Pradesh, India

Dear Sir,

Subject: RESPONSE TO – EOI FOR PARTICIPATION _____

1. We, the undersigned, offer the following information in response to the Expression of Interest sought by you vide your Notification No. _____, dated _____.
2. We are duly authorized to represent and act on behalf of _____ (herein after the "respondent")
3. We have examined and have no reservations to the EOI Document including Addenda No(s)_____.
4. We are attaching with this letter, the copies of original documents defining: -
 - 4.1 The Respondent's legal status;
 - 4.2 Its principal place of business;
 - 4.3 Its place of incorporation (if respondents are corporations); or its place of registration (if respondents are cooperative institutions, partnerships or individually owned firms);
 - 4.4 Self-certified financial statements of Last three years, clearly indicating the financial turn over and net worth.
 - 4.5 Copies of any market research, business studies, feasibility reports and the like sponsored by the respondent, relevant to the project under consideration
5. We shall assist MoR and/or its authorized representatives to obtain further clarification from us, if needed.
- 5.1 RDSO and/or its authorized representatives may contact the following nodal persons for further information on any aspects of the Response:

S. No.	Contact Name	Address	Telephone	email
1				
2				

6. This application is made in the full understanding that:
 - 6.1 Information furnished in response to EOI shall be used confidentially by RDSO for the purpose of development of the specification.
 - 6.2 RDSO reserves the right to reject or accept any or all applications, cancel the EOI and subsequent bidding process without any obligation to inform the respondent about the grounds of same.

6.3 We confirm that we are interested in participating in development of the specification/product etc. as said under EOI.

7. We certify that our turnover and net worth in the last three years is as under:

Financial Year	Turnover	Net worth

8. In response to the EOI we hereby submit the following additional details annexed to this application.

8.1 Clause wise compliance to RDSO Specification ----- Not applicable...

8.2 Details of various items being manufactured/consultancy undertaken.

8.3 Details of customer(s) and supplies made in the field of item under EOI.

8.4 Experience and expertise for the items proposed in EOI.

8.5 Details of man-power with their qualification and experience.

8.6 Details of M&P and testing equipments required for manufacturing & testing of the product under EOI.

8.7 Quality Control Requirements for the product.

8.8 Detailed proposal for items proposed in EOI including alternative proposal, if any.

8.9 Details of Intellectual Property Rights (IPR) held, patent filed/held and MOU/agreement signed.

8.10 Details of ISO certification

9. The following undertakings are hereby given:

9.1. In regard to matters relating to the security and integrity of the country, no charge sheet has been filed by an agency of the Government / conviction by a Court of Law for an offence committed by the ----- (name of the entity) or by any sister concern of the ----- (name of the entity) would result in disqualification.

9.2. In regard to matters other than the security and integrity of the country, ----- (name of the entity) has not been convicted by a Court of Law or indicted / passed any adverse order by a regulatory authority against it or it's against any sister concern which relates to a grave offence, or would constitute disqualification. Grave offence is defined to be of such a nature that it outrages the moral sense of the community.

10. The undersigned declare that the statements made and the information provided in the duly completed application are complete, true, and correct in every detail. We also understand that in the event of any information furnished by us being found later on to be incorrect or any material information having been suppressed, RDSO may delete our name from the list of qualified Respondents. We further understand that RDSO will give first preference to the applicants considered relevant for the purpose.

11. Our response is valid till (date in figures and words): _____

Yours sincerely,

(Sign)

NAME

In the Capacity of

Duly authorized to sign the

Response for and on behalf of

Date

ANNEXURE-I

FUNCTIONAL & DESIGN REQUIREMENTS OF FIRE/SMOKE DETECTION CUM SUPPRESSION SYSTEM FOR AC COACHES**1. FUNCTIONAL REQUIREMENTS:**

The system supplied should work satisfactorily under the following operating conditions of IR coaches:

1.1 Coach Dynamics:

Equipment shall withstand satisfactorily the vibrations and shocks normally encountered in service as indicated below:

- | | | |
|------|-----------------------------------|------|
| i) | Maximum vertical acceleration | 1.0g |
| ii) | Maximum longitudinal acceleration | 3.0g |
| iii) | Maximum transverse acceleration | 2.0g |

The vibrations are of sine wave form and the frequency vibration is between 1 Hz to 50 Hz.

The amplitude 'a' expressed in millimeters is given as a function of f, by equations
 $a = 25/f$ for values of f from 1 Hz to 10 Hz.

$a = 250/f^2$ for values of f exceeding 10Hz and up to 50 Hz.

- 1.2** In the direction corresponding to the longitudinal movement of the vehicle, the equipment is subjected for 2 min. to 50 Hz. Vibrations of such a value that the maximum acceleration is equal to 3g.

1.3 Coach-body displacement encountered under dynamic conditions.

- | | | |
|------|------------------------------------|---------------|
| i) | Vertically- | ± 100 mm |
| ii) | laterally - | ± 55 mm |
| iii) | longitudinally- | ± 10 mm |
| iv) | bogie rotation about center pivot- | $\pm 4^\circ$ |

1.4 Ambient Conditions

- | | | | |
|-------|---|---|--|
| (i) | Ambient temperature | : | -4°C to 50°C |
| | Altitude | : | Sea level to 2500m |
| | Max. temperature under Sun | : | 70°C |
| | Relative humidity | : | 40% to 95% |
| (ii) | The rainfall is fairly heavy. | | |
| (iii) | During dry weather, the atmosphere is likely to be dusty. | | |
| (iv) | Temperature variations can be quite high in the same journey or short period of time. | | |
| (v) | Coaches operate in coastal areas with continued exposure to salt laden air. | | |
| (vi) | The coach length over buffer is approximately 22.3 meters for ICF type coaches & for LHB type coach length over coupler is approximately 24 meters. | | |

1.5 Coach Inside Condition:

- i) Air conditioned Coaches are equipped with roof mounted air conditioning system with central ducting system and side distribution branch lines. The coaches are conditioned to a nominal temperature of 23°C to 25°C, RH 55% to 60% & air flow @ 4000 cubic meter /hour.

1.6 Power, Supply:

110±30% Volt DC supply with 15% ripple content is available from the coach circuits. For main source of supply to The System the vendor/supplier shall convert the voltage from coach circuit as per their requirements. For standby source of supply, battery and battery charger or other means of standby source of supply to The System shall be used. The standby source of supply to The System shall comply with the EN 54-4 "Fire detection and alarm systems power-supply equipments."

2.0 DESIGN REQUIREMENTS:

- 2.1 The System design shall be a proven and established technology/system on National/ International Railway systems. Documentary evidence of such as proof of supply and satisfactory performance certificate and of satisfactory service from user Railway(s) shall be provided by the vendor.
- 2.2 All The System equipment/(s) designed, shall be tested, approved and listed with at least one National/International accredited laboratories such as:
 - UL (Underwriters Laboratory)
 - FM (FM Approvals, FM Global)
 - Loss Prevention Certification Board (LPCB).
 - Verband der Sachversicherer e.V (Vds).
 - Active fire etc.
- 2.3 The System shall be designed for very early detection of fire incidence. The design should incorporate any suitable principle for higher sensitivity to detect all possible size of smoke particles and/or elevated heat. In other hand it should not give false alarms.
- 2.4 The System shall be designed to give very early warning against any fire and shall be capable to protect electrical panels of Power panel, lavatory, Doorway & Gangway, Kitchen & Escorting Staff area of Pantry Car. The system shall be compact, lightweight and highly reliable & robust in design with inbuilt redundancy to cater for any sensor failure.

FUNCTIONAL & DESIGN REQUIREMENTS OF THE SMOKE/FIRE DETECTION CUM SUPPRESSION SYSTEM FOR NON-AC COACHES

1. FUNCTIONAL REQUIREMENTS:

The system supplied should work satisfactorily under the following operating conditions of IR coaches:

1.1 Coach Dynamics:

Equipment shall withstand satisfactorily the vibrations and shocks normally encountered in service as indicated below:

- | | | |
|------|-----------------------------------|------|
| i) | Maximum vertical acceleration | 1.0g |
| ii) | Maximum longitudinal acceleration | 3.0g |
| iii) | Maximum transverse acceleration | 2.0g |

The vibrations are of sine wave form and the frequency vibration is between 1 Hz to 50 Hz.

The amplitude 'a' expressed in millimeters is given as a function of f, by equations
 $a = 25/f$ for values of f from 1 Hz to 10 Hz.

$a = 250/f^2$ for values of f exceeding 10Hz and up to 50 Hz.

- 1.2 In the direction corresponding to the longitudinal movement of the vehicle, the equipment is subjected for 2 min. to 50 Hz. Vibrations of such a value that the maximum acceleration is equal to 3g.

1.3 Coach-body displacement encountered under dynamic conditions.

- | | | |
|------|------------------------------------|---------------|
| i) | Vertically- | ± 100 mm |
| ii) | laterally - | ± 55 mm |
| iii) | longitudinally- | ± 10 mm |
| iv) | bogie rotation about center pivot- | $\pm 4^\circ$ |

1.4 Ambient Conditions

- | | | | |
|-----|----------------------------|---|--|
| (i) | Ambient temperature | : | -4°C to 50°C |
| | Altitude | : | Sea level to 2500m |
| | Max. temperature under Sun | : | 70°C |
| | Relative humidity | : | 40% to 95% |
- (ii) The rainfall is fairly heavy.
- (iii) During dry weather, the atmosphere is likely to be dusty.
- (iv) Temperature variations can be quite high in the same journey or short period of time.
- (v) Coaches operate in coastal areas with continued exposure to salt laden air.
- (vi) The coach length over buffer is approximately 22.3 meters for ICF type coaches & for LHB type coach length over coupler is approximately 24 meters.

1.5 Coach Inside Condition:

Inside condition of the coach may consider as under:

- i) The ambient conditions may be similar as mentioned under para 1.4 above, as there is no control in temperature as the coaches are Non-air-conditioned. However in summer day the value of upper range of the temperature may go upto 60⁰C nearby the roof ceiling. There may be remarkable variation in temperature inside of the coach from floor to roof level.
- ii) Wind flow speed nearby the window portion may be considered more than the specified speed of the coach, as windows may remain opened. The specified speed of the Non-AC coaches is 110 kmph.

1.6 Power, Supply:

110±30% Volt DC supply with 15% ripple content is available from the coach circuits. For main source of supply to The System the vendor/supplier shall convert the voltage from coach circuit as per their requirements. For standby source of supply, battery and battery charger or other means of standby source of supply to The System shall be used. The standby source of supply to The System shall comply with the EN 54-4 "Fire detection and alarm systems power supply equipments."

2.0 DESIGN REQUIREMENTS:

- 2.1 The System design shall be a proven and established technology/system on National/ International Railway systems. Documentary evidence of such as proof of supply and satisfactory performance certificate and of satisfactory service from user Railway(s) shall be provided by the vendor.
- 2.2 All The System equipment/(s) designed, shall be tested, approved and listed with at least one National/International accredited laboratories such as:
 - UL (Underwriters Laboratory)
 - FM (FM Approvals, FM Global)
 - Loss Prevention Certification Board (LPCB).
 - Verband der Sachversicherer e.V (Vds).
 - Active fire etc.
- 2.3 The System shall be designed for very early detection of fire incidence. The design should incorporate any suitable principle for higher sensitivity to detect all possible size of smoke particles and/or elevated heat. In other hand it should not give false alarms.
- 2.4 The System shall be designed to give very early warning against any fire and shall be capable to protect electrical panels of Power panel, lavatory, Doorway & Gangway etc. The system shall be compact, lightweight and highly reliable & robust in design with inbuilt redundancy to cater for any sensor failure.
- 2.5 The system designed should have feature of automatic braking with provision of overriding to this feature by Guard/Driver of the train.

ANNEXURE-III

FUNCTIONAL & DESIGN REQUIREMENTS FOR FIRE EXTINGUISHERS FOR INDIAN RAILWAYS AC & NON AC COACHES.**1. FUNCTIONAL REQUIREMENTS:**

The system supplied should work satisfactorily under the following operating conditions of IR coaches:

1.1 Coach Dynamics:

Equipment shall withstand satisfactorily the vibrations and shocks normally encountered in service as indicated below:

- | | | |
|------|-----------------------------------|------|
| i) | Maximum vertical acceleration | 1.0g |
| ii) | Maximum longitudinal acceleration | 3.0g |
| iii) | Maximum transverse acceleration | 2.0g |

The vibrations are of sine wave form and the frequency vibration is between 1 Hz to 50 Hz.

The amplitude 'a' expressed in millimeters is given as a function of f, by equations $a = 25/f$ for values of f from 1 Hz to 10 Hz.

$a = 250/f^2$ for values of f exceeding 10Hz and up to 50 Hz.

- 1.2** In the direction corresponding to the longitudinal movement of the vehicle, the equipment is subjected for 2 min. to 50 Hz. Vibrations of such a value that the maximum acceleration is equal to 3g.

1.3 Coach-body displacement encountered under dynamic conditions.

- | | | |
|------|------------------------------------|---------------|
| i) | Vertically- | ± 100 mm |
| ii) | laterally - | ± 55 mm |
| iii) | longitudinally- | ± 10 mm |
| iv) | bogie rotation about center pivot- | $\pm 4^\circ$ |

1.4 Ambient Conditions

- | | | |
|-------|---|----------------------|
| (i) | Ambient temperature | : -4° C to 50° C |
| | Altitude | : Sea level to 2500m |
| | Max. temperature under Sun | : 70° C |
| | Relative humidity | : 40% to 95% |
| (ii) | The rainfall is fairly heavy. | |
| (iii) | During dry weather, the atmosphere is likely to be dusty. | |
| (iv) | Temperature variations can be quite high in the same journey or short period of time. | |
| (v) | Coaches operate in coastal areas with continued exposure to salt laden air. | |
| (vi) | The coach length over buffer is approximately 22.3 meters for ICF type coaches & for LHB type coach length over coupler is approximately 24 meters. | |

1.5 Coach Inside Conditions:

Inside condition of the coach may consider as under:

- i) The ambient conditions may be similar as mentioned under para 1.4 above, as there is no control in temperature for non-AC coaches. However in summer day the value of upper range of the temperature may go up to 60°C nearby the roof ceiling. There may be remarkable variation in temperature inside of the coach from floor to roof level.
- ii) Wind flow speed nearby the window portion may be considered more than the specified speed of the non-AC coaches, as windows may remain opened. The specified speed of the non-AC coaches is 110 kmph and 130 kmph in AC coaches.
- iii) Air conditioned Coaches are equipped with roof mounted air conditioning system with central ducting system and side distribution branch lines. The coaches are conditioned to a nominal temperature of 23°C to 25°C, RH 55% to 60% & air flow @ 4000 cubic meter /hour.

2.0 DESIGN REQUIREMENTS:

- 2.1 The Fire Extinguishers shall have a proven and established technology/system on National/ International Railway Systems. Documentary evidence of such as proof of supply and satisfactory performance certificate and of satisfactory service from user Railway(s) shall be provided by the vendor.