



**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-03-2015**

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

Carriage Directorate of RDSO is dealing with design and development of Coach Items and is interested in developing alternate sources with different material other than the existing one (i.e. High Capacity Thermoplastic Polyester Elastomer, Hytrel from EI Dupont and Arnitel from DSM Engineering) for Upper & Lower Washers used in primary suspension for BG main line coaches.

Firms /Organizations who have enough experience and capabilities in the field and have ISO certificate and are interested in developing and supply of said items are requested to submit a clause wise compliance of specifications. In case of any deviations, the same should be brought out clearly. The interested firms/organizations are requested to submit details in the prescribed format attached herewith on or before 09.07.2015 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.rdso@gmail.com, [dirssrdso@gmail.com](mailto:dirssrdso@gmail.com)

Enclosed: Proforma for response

### **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 \_\_\_\_\_ (hereinafter 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	E Mail
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 project.
- 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 project.

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
- 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. Detailed proposal for items proposed in EOI including alternative proposal, if any.
- 8.7. Details of Intellectual Property Rights (IPR) held, patent filed/held and MOU/agreement signed.
- 8.8. 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 its 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

# FUNCTIONAL REQUIREMENTS SPECIFICATION FOR UPPER & LOWER WASHERS USED IN THE PRIMARY SUSPENSION FOR B.G. MAINLINE COACHES

## 1. REQUIREMENTS

### Dimensions and Tolerances

The dimensions and tolerances of the washers shall be as given below (all dimensions in mm)

Upper Washer for Mainline coaches			Lower Washer for Mainline coaches		
Thickness	Inner dia.	Outer dia.	Thickness	Inner dia.	Outer dia.
35 $\pm$ 1	168 $\pm$ 1	260 $\pm$ 1	35 $\pm$ 1	112 $\pm$ 1	252 $\pm$ 1

## 2. PROPERTIES

The washers shall conform to the requirements as given in Table-1 & 2,

**Table-1**

(Properties to be measured on prepared test specimen for Type test)

S. No.	Property	Test Method	Unit	Value
1.	Hardness			
2.	Tensile Stress at break, minimum			
3.	Tensile Strain at break, minimum			
4.	Specific gravity			
5.	Compression set after 22 hrs. 9.3Mpa at 100 °C			
6.	Ash Content			
7.	Resistance to oil contamination			
8.	Resistance to spread of flame			
9.	Any Other-----			

**Table-2**

(Properties to be measured on finished product for Acceptance Test)

S. No.	Property	Test Method	Unit	Value
1.	Specific Gravity			
2.	Hardness			
3.	Ash Content			
4.	Load Deflection	As per Clause – 3	-	As per Clause – 3
5.	Crush load test	As per Clause – 3	-	As per Clause – 3
6.	Compression set after 22 hrs. 9.3Mpa at 100 °C			
7.	Weight of upper washer			
8.	Weight of lower washer			
9.	Resistance to oil contamination			
10.	Resistance to spread of flame			

### **3. Compressive load deflection, crush load:**

#### **3.1. Lower Washer for Mainline coaches**

##### **a) Compressive Load Deflection Test:**

The test shall be carried out at room temperature ( $27 \pm 2^{\circ}\text{C}$ ) with machine speed of  $10 \pm 5$  mm/minute. Two washers shall be subjected, in a suitable fixture, to 3 successive-loading of 10t and in the fourth cycle, the deflection at the loads of 2t to 10t at the interval of one tonne shall be recorded with the help of dial gauge/digital read out. At the beginning of the fourth cycle, the dial gauge should be set at zero at a load of 100 Kg. The deflection of lower washers at different loads shall be within the specified limits as given below.

<b>Load in tonne</b>	<b>Deflection in mm</b>
2	4.25 – 5.75
3	5.95 – 8.05
4	7.65 – 10.35
5	9.05 – 12.05
6	11.35 – 14.50
7	12.50 – 15.10
8	14.00 – 16.60
9	15.20 – 17.80
10	16.60 – 19.30

After the test, the washer should also comply the following;

- i) At the maximum load, the sample shall not show any evidence of cracking.
- ii) The outer diameter, inner diameter and the thickness of washer measured after one hour of the test shall be within the specified tolerances shall be as indicated in the clause –1.

##### **b) Crush Load Test:**

After the successful testing of washers as per clause-3.1 (a), the same washer shall be subjected to crush load test. The load of 15 tonne, at a speed of  $10 \pm 5$  mm/minute shall be applied for 5 sec. The load shall be released immediately after 5 sec. The thickness of washer measured after two hours of the test, shall not be less than 34 mm. The washers should also not show any crack or deformations.

#### **3.2 Upper Washer for Mainline Coaches**

##### **a) Compressive load deflection test:**

The test shall be carried out at room temperature ( $27 \pm 2^{\circ}\text{C}$ ) with machine speed of  $10 \pm 5$  mm/minute. Two washers shall be subjected, in a suitable fixture, to 3 successive loading of 10 tonne and in the fourth cycle, the deflection at the loads of 2t to 10t at the interval of one tonne shall be recorded with the help of dial gauge/digital read out. At the beginning of the fourth cycle, the dial gauge should be set at zero at a load of 100 Kg. The deflection of upper washers shall be within the specified limits as given below.

Load in tonne	Deflection in mm
2	5.10 – 6.90
3	7.65 – 10.35
4	9.35 – 12.65
5	11.15 – 14.95
6	13.95 – 17.80
7	16.10 – 19.50
8	17.80 – 21.40
9	19.30 – 22.80
10	20.30 – 23.90

After the test, the washer should also comply the following;

- i) At the maximum load, the sample shall not show any evidence of cracking.
- ii) The outer diameter, inner diameter and the thickness of washer measured after one hour of the test shall be within the specified tolerances shall be as indicated in the clause –1.

**b) Crush Load test:**

After the successful testing of washers as per clause-3.2 (a), the same washer shall be subjected to crush load test. The load of 15 tonne, at a speed of  $10 \pm 5$  mm/minute shall be applied for 5 sec. The load shall be released immediately after 5 sec. The thickness of washer measured after two hours of the test, shall not be less than 34 mm. The washers should also not show any crack or deformations.

**Warranty** – Not less than 24 months from date of fitment.