



भारत सरकार, रेल मन्त्रालय  
**GOVERNMENT OF INDIA**  
**MINISTRY OF RAILWAYS**

**SPECIFICATION FOR**  
**THRUST PAD - LATERAL USED IN**  
**WDG4 & WDP4 LOCOMOTIVE BOGIES**

**SPECIFICATION NO. MP- 0.49.00.20**  
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*Cost (Rs).....*

## SPECIFICATION FOR THRUST PAD - LATERAL USED IN WDG4 & WDP4 LOCOMOTIVE BOGIES

### 1. SCOPE

This Specification covers the technical requirements of Thrust Pad - Lateral.

### 2. TECHNICAL REQUIREMENTS OF THRUST PAD - LATERAL

2.1 Thrust Pad is combination of Rubber base and Nylon contact pad. Pad shall be to EMD Pt.No.40074620. Tolerance on Rubber dimensions shall be as per ISO: 3302, Part 1, Class M-4 if not specified. Pad should be made of natural rubber suitably compounded to conform to the requirements stipulated in this specification. The material bonded contact pad shall be Polyamide. Thrust pad shall be manufactured by injection / transfer moulding process.

Housing shall be as per EMD part no 40074618 & Thrust Pad Asm shall be as per EMD Part No. 40074617.

#### 2.2 Manufacturing Requirement.

Following tests shall be conducted to ensure properties of rubber as per the relevant standards:

	Properties	Method/ Standard	Frequency of test	Permissible Limits
1.	Tensile Strength kg/cm <sup>2</sup>	ASTM D 412	One per lot	180 (min)
2.	Elongation at break	ASTM D 412		400% (min)
3.	Hardness Shore 'A'	ASTM D 2240		60±5
4.	Compression set at 70°C for 22 hours	ASTM D 395		25% (max)
5.	Heat Resistance Test	ASTM D 573		See para1
6.	Resistance to Ozone Test (Quality retention rating)	ASTM D 1171	During prototype inspection and subsequently every six months	85%(min)
7.	Low temperature resistance at -40°C for 3 minutes	ASTM D 2137		Non brittle & no crack

Para1: Heat Resistance Test

This test is to be done as per ASTM D 573 after ageing at 70° C for 70 hours. The tensile strength, elongation at break and hardness shall not vary from the value obtained before heat resistance test by more than the limits as follows:

	Properties	Permissible variation
1.	Tensile Strength	±20%
2.	Elongation at break	±25%
3.	Hardness (Shore 'A')	+ 5° /- 0

Following tests shall be conducted to ensure properties of bonded contact pad as per the relevant standards and shall conform to the following limits:

	<b>Properties</b>	<b>Method/ Standard</b>	<b>Frequency of test</b>	<b>Permissible Limits</b>
1.	Specific Gravity	ASTM D 792	Per lot or Test Certificate	1.20 – 1.40
2.	Hardness Shore 'D'	ASTM D 2240		85±5
3.	Tensile Strength (kg/cm <sup>2</sup> ) (min)	ASTM D 638		950
4.	Elongation at Break	ASTM D 638		25% max.

*In case this material is a brought-out item, complete test certificate from the manufacturer shall be obtained for each lot & produced for examination of the Inspector.*

### 2.3 Shear Bond Strength (Type Test)

Shear strength between Rubber Pad and Contact Pad to be tested as per the test procedure evolved between RDSO and Supplier. The bond strength between Contact Pad and Rubber shall be checked and shall be minimum 35 kg. / cm<sup>2</sup>.

### 2.4 Load-Deflection Test

Pad assembly shall be subjected to three successive loading upto 14.0 Tones, during the 4<sup>th</sup> cycle the Pad Assembly shall be compressed and the deflection value taken at various loads shall be within the permissible values given below.

	<b>Load in Tonne</b>	<b>Specified deflections values in mm</b>
1.	50 kg	0.0
2.	2.0	1.00 - 1.35
3.	4.0	2.05 - 2.60
4.	6.0	2.72 - 3.60
5.	8.0	3.30 - 4.35
6.	10.0	3.75 - 4.95
7.	12.0	4.10 - 5.40
8.	14.0	4.35 - 5.71

## 2.5 Fatigue test (Type Test Only)

Fatigue test shall be conducted by RDSO before clearing the material for field evaluation.

Load	Frequency	No. of cycles
0 to 14 tonne	1 to 1.5 Hz	Up to 5 lacs

The pad should withstand 5 lacs cycles and should not show any sign of bond failures or Rubber Cracks.

The fatigue test shall be carried out in the supplier's premises for which the supplier shall have all the necessary testing facilities.

## 3. FIELD TRIALS

Field trial to be conducted on minimum 02 Locomotives at two different diesel loco sheds for a minimum period of one year for qualifying for developmental order.

## 4. LOT SIZE

500 Nos.

## 5. SAMPLING

Dimensional check by Composite Snap Gauges – 10 Nos. every Batch

Physical testing – One per Batch

## 6. MARKING

Each Thrust Pad - Lateral shall be suitably marked containing the following information by embossing / punching with height of letters of 4 mm size:

- a. Drawing / EMD Part number
- b. Manufacturer's name (initial / trade mark)
- c. Month and Year of manufacture.

## 7. PACKING

The Thrust Pad shall be packed in cardboard cases or wooden crate suitably to protect them against damage during transit and storage.

## 8. STORAGE

The Thrust Pad - Lateral shall be stored in a cool and dry place.

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