



सत्यमेव जयते

Government of India
Ministry of Railways

**Functional Requirement Specification (FRS) for Bearings
NU 2236 & NJ 320 used in 3-Phase Traction Motor Type
6FRA 6068 for WAG9/WAP7.**

No. RDSO/EL/FRS/BEARING/0012-2015 Rev. '0'

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Approved by	Signature
EDSE(Co-ord)	 28.9.15

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	 ADE/TM	

Functional Requirement Specification (FRS) for Bearings NU 2236 & NJ 320 used in 3-Phase Traction Motor Type 6FRA 6068 for WAG9/WAP7

1. Foreword

At present, 3-Phase Traction Motor Type 6FRA 6068 is used in Electric Locomotive of type WAG9/ WAP7. These traction motors have been provided with bearings NU-2236 (DE) & NH-320 (NDE). With this Functional Requirement Specification; it is intended to develop the additional sources for procurement of these bearings.

2. Scope

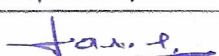

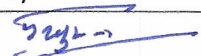
This Functional Requirement Specification (FRS) covers design, development and manufacturing for bearings (NU 2236 & NH 320) of 3-phase traction motor type 6FRA 6068 TM for WAG9/WAP7 and shall be used for developing additional sources for these bearings.

3. Methodology of development

- I. Development of bearings will be as per Functional Requirement Specification (FRS).
- II. Bidder shall offer the broad design parameters and dimensional drawings of bearings
- III. Prototype unit of subject bearings shall be type tested and got approved by RDSO before dispatch.
- IV. After successful prototype testing by RDSO & routine testing by consignee, bearings shall be cleared for fitment on traction motors for field trial as per RDSO's latest guideline on bearing policy.
- V. Before registration in master list of approved vendors, the complete formalities shall be fulfilled as per Work Instruction no.EL-WI-7.1-1 (or latest) for fresh registration case.

4. Basic details of Bearings:

Parameters	DE side (NU 2236)	NDE side (NH 320)
Basic dynamic load rating (C)	1100 KN	391 KN
Basic static load rating (C ₀)	1500 KN	440 KN
ID (nominal) mm	Φ180	Φ100
OD (nominal) mm	Φ320	Φ215
Over all width mm	86	47 (Excluding angle ring) 60 (Including angle ring)
Radial clearance mm	0.170-0.220	0.105-0.140
Maximum operating temperature	100 °C	100 °C
L-10 life	>1.6 million KM	>1.6 million KM
Lubrication	Servoplex SHC-120 (IOC)	Servoplex SHC-120 (IOC)
Special feature	--	Insulated bearing

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5. Details of proposed bearings to be submitted to RDSO:-

- i. Two sets of signed dimensional drawings of proposed bearings with Significance of each suffix/ prefix, accuracy class, Suitability of application are to be submitted.
- ii. Details of bearings i.e. number of roller and size, type of cage guide, Cage material (brass/steel/bronze), riveted or rivets less, gap between cage and rollers, radial & axial clearance etc. to be submitted.
- iii. Details mentioned in paragraph 4, for the proposed bearings to be submitted
- iv. Material specification and surface finish level for inner and outer rings, cage, racer and roller.
- v. Detailed calculation of L-10 life as well as dynamic & static load capacity of proposed bearing.
- vi. Any other relevant information

6. Field Trial:

After completion of all formalities laid down in Work Instruction No. EL-WI-7.1-1 (or latest), the field trial shall be carried out as per prevalent ISO instructions and latest bearing policy guideline.

7. Application:

In traction motor type 6FRA 6068 for Electric Locomotive WAG9/WAP7.

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