



सत्यमेव जयते

Government of India
Ministry of Railways

**Functional Requirement Specification (FRS) for Bearings
NU 224 & NH 219 used in Traction Motor type 6FXA 7059
for WAP5 locomotive**

No. RDSO/EL/FRS/BEARING/0011-2015 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 224 & NH219 used in Traction Motor type 6FXA 7059 for WAP5 Locomotives

1. Foreword

At present, 3-Phase Traction Motor Type 6FXA 7059 is used in Electric Locomotive type WAP5. These traction motors have been provided with bearings NU 224 (DE) & NH 219 (NDE). With this Functional Requirement Specification; it is intended to develop the additional sources for procurement of these bearings.

2. Scope

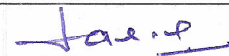

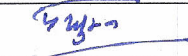
This Functional Requirement Specification (FRS) covers design, development and manufacturing for bearings (NU 224 & NH 219) of 3-phase traction motor type 6FXA 7059 TM for WAP5 and shall be used for developing additional sources for these bearings.

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. Proto type 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 guidelines 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) as applicable for fresh registration case.

4. Basic details of Bearings:

| Parameters | DE side (NU 224) | NDE side (NJ219) |
|--------------------------------------------|------------------|--------------------------------------------------------|
| Basic dynamic load rating (C) | 390 KN | 220 KN |
| Basic static load rating (C ₀) | 430 KN | 265 KN |
| ID (nominal) mm | Φ120 | Φ95 |
| OD (nominal) mm | Φ215 | Φ170 |
| Over all width mm | 40 | 32 (Excluding angle ring) 41 (Including angle ring) |
| Radial clearance mm | 0.125-0.165 | 0.105-0.140 |
| Maximum operating temperature | 100 °C | 100 °C |
| L-10 life | >1.6 million KM | >1.6 million KM |
| Lubrication | Mobilux EP2 | Mobilux EP2 |
| 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 6FXA7059 for Electric Locomotive WAP5.

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