ANSUK POLYMERS PVT. LTD. MUMBAI

PRODUCT - POT - PTFE - 3100405

REGISTRATION ID - 64564

CLAUSE	ITEM	DESCRIPTION	REFERENCE	SECTION REFERENCE
6.3		**FOLLOWING LABORATORY FACILITIES FOR TESTING OF ELASTOMER MUST BE AVAILABLE IN-HOUSE WITH FABRICATOR/FIRM. DETAILS OF EQUIPMENT LIKE MAKE, MODEL NUMBER, QUANTITY, SERIAL NUMBER, CAPACITY, YEAR OF MANUFACTURE/ COMMISSIONING SHALL BE SUBMITTED ALONG WITH APPLICATION-**		
	(I)	UNIVERSAL TENSILE STRENGTH TESTING FACILITY.	ANNEX 1	TESTING FACILITY SEC(10)
	(II)	COMPRESSION SET TESTING APPARATUS.	ANNEX 1	TESTING FACILITY SEC(16)
	(III)	VISCOMETER TO CHECK VISCOSITY OF ADHESIVE.	ANNEX 1	TESTING FACILITY SEC (29)
	(IV)	MINIMUM TWO NUMBER SHORE HARDNESS TESTERS WITH STANDARD TEST PIECES.	ANNEX 1	TESTING FACILITY SEC (11)
	(V)	SPECIFIC GRAVITY TESTING APPARATUS.	ANNEX 1	TESTING FACILITY SEC (30)
	(VI)	ASH CONTENT TESTING FACILITY.	ANNEX 1	TESTING FACILITY SEC (15)
6.3.1		**FOLLOWING LABORATORY FACILITIES FOR TESTING OF ELASTOMER MUST BE AVAILABLE IN-HOUSE/OUTSOURCED WITH FABRICATOR/FIRM. IF FACILITY IS IN HOUSE PROVIDE DETAILS OF EQUIPMENT LIKE MAKE, MODEL NUMBER, QUANTITY, SERIAL NUMBER, CAPACITY, YEAR OF MANUFACTURE/ COMMISSIONING. IF OUTSOURCED, SUBMIT COPY OF MOU WITH NABL LAB AND COPY OF SOME PREVIOUS TEST CERTIFICATE ISSUED BY NABL LAB. THE MOU SHOULD HAVE VALIDITY OF MINIMUM 65 MONTHS.**		

	(I)	RUBBER/ELASTOMER TESTING FACILITIES ALONG WITH SPECTROPHOTOMETER FOR OZONE RESISTANCE TESTING AS PER ISO:1431-1.	ANNEX 1	TESTING FACILITY SEC (31)
CLAUSE	**ITEM**	**DESCRIPTION**	**REFERENCE**	**SECTION REFERENCE**
	(II)	POLYMER CONTENT TESTING FACILITIES AS PER ASTM D-297.	ANNEX 1	TESTING FACILITY SEC (23)
	(III)	POLYMER IDENTIFICATION TESTING AS PER IS 3400:PART XXII.	ANNEX 1	TESTING FACILITY SEC (23)
	(IV)	PYROLYSIS TESTING FACILITIES AS PER IS 3400:PART XXII.	ANNEX 1	TESTING FACILITY SEC (15)
	(V)	PERCENTAGE POLYMER CONTENT AS PER IS 3400:PART XXII.	ANNEX 1	TESTING FACILITY SEC (15)
	(VI)	ADHESION STRENGTH OF ELASTOMER TO STEEL PLATE AS PER IS:3400 PART XIV PART A.	ANNEX 1	TESTING FACILITY SEC (10)
6.4		**TEST FACILITIES FOR MILD STEEL, STAINLESS STEEL, BRASS SEALING RING, PTFE.**		
		FOLLOWING LABORATORY FACILITIES FOR TESTING OF ELASTOMER MUST BE AVAILABLE IN-HOUSE/OUTSOURCED WITH FABRICATOR/FIRM. IF FACILITY IS IN HOUSE PROVIDE DETAILS OF EQUIPMENT LIKE MAKE, MODEL NUMBER, QUANTITY, SERIAL NUMBER, CAPACITY, YEAR OF MANUFACTURE/ COMMISSIONING AND COPY OF TEST CERTIFICATES ISSUED EARLIER. IF OUTSOURCED, SUBMIT COPY OF MOU WITH NABL LAB AND COPY OF SOME PREVIOUS TEST CERTIFICATE ISSUED BY NABL LAB. THE MOU SHOULD HAVE VALIDITY OF MINIMUM 65 MONTHS.		
	(I)	COMPRESSIVE & TENSILE STRENGTH TESTING FACILITY.	INO (NABL LAB)	TESTING FACILITY SEC (36)
	(II)	BEND STRESS TESTING FACILITIES.	INO (NABL LAB)	TESTING FACILITY SEC (36)
	(III)	IMPACT STRENGTH TESTING FACILITIES.	INO (NABL LAB)	TESTING FACILITY SEC (36)
	(IV)	HARDNESS TESTING FACILITIES.	INO (NABL LAB)	TESTING FACILITY SEC (36)
	(V)	CHEMICAL TESTING FACILITIES FOR DETERMINATION OF CHEMICAL COMPOSITION.	INO (NABL LAB)	TESTING FACILITY SEC (36)
	(VI)	ULTRASONIC TESTING FACILITIES.	INHOUSE	

	(VII)	LIQUID PENETRATION TESTING FACILITIES.	INHOUSE	
6.5		**FOLLOWING LABORATORY FACILITIES FOR TESTING OF POT-PTFE BEARING MUST BE AVAILABLE IN-HOUSE WITH FABRICATOR/FIRM. FIRM MUST PROVIDE DETAILS OF EQUIPMENT LIKE, MAKE, MODEL NUMBER, QUANTITY, SERIAL NUMBER, CAPACITY, AND YEAR OF MANUFACTURE/ COMMISSIONING.**		
	(I)	PROOF LOAD TESTING FACILITIES AS PER PARA 7.4.3.1 OF IRC 83 :PART (III).	INHOUSE (test frame 1200 ton - 1600 ton)	
	(II)	FRICTION TESTING FACILITIES AS PER PARA 7.4.3.2 OF IRC 83 :PART (III).	INHOUSE (test frame 1200 ton - 1600 ton)	
	(III)	ROTATION TESTING FACILITIES AS PER PARA 7.4.3.3 OF IRC 83 :PART (III).	INHOUSE (test frame 1200 ton - 1600 ton)	

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STANDARD QUALITY ASSURANCE PLAN FOR POT-PTFE BEARINGS

1. Name of Manufacture: M/s. Ansuk Polymers Pvt. Ltd.
2. Drg. No.: 1. T-922-A1-1-FIX, 2. T-922-A1-2-LGB, 3. T-922-A1-3-TGB, 4. T-922-A1-4-FR,
3. Name of Project/Railway: Construction of Two Flyovers Over Jaganade Square in Nagpur City, The First Connecting Reshimbagh chowk to KDK College Square & The Second Connecting Bhande Polt Chowk to Telephone Exchange chowk in the State of Maharashtra.
4. Authority (CA No./LOA No./Order No. : MI/MRIDC/ANSUK/BEARING/01 DT: 16.07.2024

S. No.	Component Operation	Characteristic Checked	Frequency & Type of check	Reference Document	Fabriactor's quality control	Inspection details		Type of Records	Acceptance criteria	Remarks
						Inspecting Agency	Extent of Inspection			
1	2	3	4	5	6	7	8	9	10	11
1.0 1.1	**RAW MATERIAL:** Cast Steel (CS)	**Physical & Chemical Test** UTS, Yield Stress, Elongation%, Reduction of Area, Hardness test. Test for C, Mn, Si, P, S, Cr, Ni, Mo, Cu ,V etc.	As per manufacturer certificate & test required by Authorized inspecting Official of Zonal Railway from Govt./ NABL approved lab	Mill TC and Challan	1. Verification of reference document 2. Complete visual inspection	Authorized Inspecting official of Zonal Railway	One integral Test piece per heat (Review Reference documents)	Fabricators record Co-related with Mill TC & test report.	Cast steel shall generally comply with Grade 340-570W of IS:1030/ (Grade/Class as per relevant approved Drg.).	1. Manufacturer's test certificate shall be furnished. 2. Cast Steel Material shall comply with IRC:83 (Part-III) or Grade/Class mentioned in approved drawing.
1.2	Mild Steel	**Mechanical & Chemical Test** UTS, Yield Stress, Elongation%, Bend test , Impact test at 0 degree centigrade or -20 degree for sub-zero zone, test for C, Mn, Si, P, S, CE etc.	As per Mill TC & test required by Authorized inspecting official of Zonal Railway from Govt. Lab ./ NABL approved lab.	Mill TC and Challan	Verification of Reference document and Complete visual inspection.	Authorized Inspecting official of Zonal Railway.	One test piece per thickness per heat. (Review Reference documents)	Fabricators record Co-related with Mill TC & test report.	Grade E250 BR (min.) of IS: 2062, shall generally be used. However Quality C of IS:2062 shall be used for sub zero condition / As specified in approved Drawing.	1. Manufacturer's test certificate shall be furnished. 2. Physical condition of raw material must be visually checked for Pitting, rusting, rolling defect etc before use. 3. Mild Steel Material shall comply with IRC:83 (Part-III) or Grade/clause mentioned in approved drawing.

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1	2	3	4	5	6	7	8	9	10	11
1.3	Stainless Steel (S.S.)	**Physical & Chemical Test** UTS, Yield Stress, Elongation %, Hardness, Test for C, Mn, Ni, Cr, P, S, Si, Mo etc.	As per Mill TC & test required by Authorized inspecting official of Zonal Railway from Govt. Lab ./ NABL approved lab.	Mill TC and Challan.	Verification of Reference document and Complete visual inspection.	Authorized Inspecting official of Zonal Railway.	One test piece per thickness per heat. (Review Reference documents)	Fabricators record Co-related with Mill TC & test report.	Stain less steel shall conform to AISI 316 or AISI316L Or (Grade/class As per relevant approved Drg.).	1. Manufacturer's test certificate shall be furnished. 2. Sample from each lot of S.S shall be drawn by authorize inspecting official and tested in Govt./NABL approved laboratory. 3. Stainless Steel Material shall comply clause 4.1 and ANNEXURE-G of IRC:83 (Part-III) or Grade/clause mentioned in approved drawing.
1.4	PTFE	**Mechanical and Physical Properties** Tensile strength, % Elongation at break, Durometer Hardness shore 'D', Specific Gravity.	per Mill TC & test required by Authorized inspecting official of Zonal Railway from Govt. Lab ./ NABL approved lab.	Manufacturer test certificate &Challan	Verification of reference document.	Review Reference documents	One test piece per full lot of supply. (Review Reference documents)	Fabricators record.	IRC:83 (Part-III) and referred documents or as per relevant specification / approved Drg.).	1. Material shall be either polytetrafluoroethyelene (PTFE) free sintered without regenerated material or anyother material having requisite material strength and low frictional properties. 2. Pattern of dimple shall be as per Fig. 4 of IRC:83 (Part-III). 3. Manufacturer's test certificate shall be furnished. 4. PTFE material must comply the parameters given in Clause 4.2 of IRC:83 (Part-III).

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1	2	3	4	5	6	7	8	9	10	11
1.5	Elastomer	Physical properties	As per manufacturer certificate & test required by RDSO/Authorized inspecting official from Govt. lab./ NABL approved lab.	Manufacturer test certificate & Challan.	Verification of reference document.	Authorized Inspecting official of Zonal Railway.	From each batch at Random. (Review Reference documents)	Fabricators record.	IRC:83 (Part-III) & referred document/ as per relevant test procedure.	1. The elastomer to be used for the component of bearing shall be made of Natural Rubber (NR) or Chloroprene Rubber (CR). 2. Raw material must meet requirements given in Clause 4.4 and ANNEXURE-G of IRC:83 (Part-III). 3. Manufacturer's test certificate shall be furnished.
1.6	Brass sealing Ring	Physical & Chemical properties	As per manufacturer certificate & test required by RDSO/Authorized inspecting official from Govt. lab./ NABL approved lab.	Manufacturer test certificate & Challan.	Verification of reference document.	Authorized Inspecting official of Zonal Railway.	One test pc for full lot of supply. (Review Reference documents)	Fabricators record.	CuZn37/CuZn 40 as per IS:410 or CuZn37 or CuZn39 Pb3 of EN12163 & EN12164 respectively or Grade/class As per relevant approved Drawing.	1. Test certificate shall be furnished by manufacturer. 2. One sample for full lot of sealing ring supply shall be drawn by Authorized Zonal Railway inspecting official for testing in Govt./NABL approved laboratory. 3. Material must meet requirements given in Clause 4.5 of IRC:83 (Part-III).
1.7	Bolts & Nuts	**Physical &** **Chemical properties**	As per manufacturer certificate & test required by RDSO/Authorized inspecting official from Govt. lab./	Manufacturer test certificate & Challan.	Verification of reference document.	Authorized Inspecting official of Zonal Railway.	As per relevant specification (Review Reference documents)	Fabricators record.	IRC83 (Part-III) & referred documents Or Grade/class as per relevant approved Drawing.	1. Test certificate shall be furnished by manufacturer. 2. Fasteners must meet requirements given in Clause 4.8 and ANNEXURE-G of IRC:83 (Part-III).

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			NABL approved lab.							
2.0 2.1	**Manufacturing Process** Process Inspection	Dimensional inspection ,NDT and visual inspection	Visual & Measurement	As per approved drawing	Measurement of dimension & Verification of reference document.	Fabricators record.	(Review Reference documents)	Fabricators record.	IRC 83 Part-III & as per approved drawing	1. Internal report shall be furnished, However check shall be done in presence of Zonal Railway inspecting official. 2. Manufacturing tolerances and Manufacturing method of bearing shall confirm to IRC:83 (Part-III) respectively. 3. The manufacturer should be able to establish the traceability of all major raw material with procurement and consumption record and Mill Test Certificate or material test report 4. All welding shall be done by qualified welder on the basis of applicable WPSS and shall be in accordance to Clause 6.2.10 of IRC:83 (Part-III). 5. All structural welds shall be visually checked for weld size and location as per

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										drawing as well as controlled as per the following tests: - Visual test (all structural welds) -Liquid penetration test.
2.2	**Tolerance of fit between different component of bearing**	Dimensional Inspection	Visual and measurement	As per relevant Drg	Measurement of dimensions & surface roughness.	Fabricators record.	100% (Review Reference documents)	Fabricators record	IRC 83 Part-III & as per approved drawing	1. Inspection records to be furnished. However random checking may be done in-presence of inspecting authority of Zonal Railway. 2. Tolerance of fit between different component of bearing shall comply with IRC:83 (Part-III) & as per approved drawing
2.3	**Corrosion Protection**	Surface preparation & protective coating system	Visual and measurement	As per drawing and relevant specification	Fabricators record & check.	Fabricators record.	100% (Review Reference documents)	Fabricators record.	IRC-83 Part-III & referred document.	1. Surface preparation & protective coating system must be in accordance to IRC-83 Part- III. 2. Internal report shall be furnished. However, total DFT shall be checked randomly by inspecting authority of Zonal Railway.
3.	**Inspection on finish bearing**									
3.1	Dimensional Inspection	Over all Dimensional check of finished bearing	Visual and measurement	As per drg. and relevant specification	Fabricators record & check.	Authorized Inspecting official of Zonal Railway.	100% (Review Reference documents)	Fabricators record.	IRC-83 Part-III & as per approved drawing	1. All bearings of the lot shall be visually inspected for absence of any defects in surface finish, shape or any other discernible superficial defects.

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										2. Internal report shall be furnished. However, total Bearings shall be checked randomly by inspecting authority of Zonal Railway.
3.2	**Load Test** a) Proof Load Test b) Friction test c) Rotation test	Load Testing parameters as per Clause 7.4.3 of IRC-83 Part-III,2018	At least one or a pair of bearings (depending on the requirement) of each type and different vertical load capacity selected at random shall be load tested	As per relevant Drawing.	Fabricators record.	Authorized Inspecting official of Zonal Railway.	At least one or a pair of bearings	Fabricators record.	IRC-83 Part-III,2018	1. Proof Load Test of bearings shall be done as per Clause 7.4.3.3.1 of IRC:83 (Part-III). 2. Friction Test of bearings shall be done as per Clause 7.4.3.3.2 of IRC:83 (Part-III). 3. Rotation Test of bearings shall be done as per Clause 7.4.3.3.3 of IRC:83 (Part-III).
3.3	**Final Clearance Inspection**	After load test bearing must be checked for condition of components	Visual and measurement and testing	As per relevant Drg. & specification	Measurement of dimension	Zonal Railway.	100% (On tested bearing)	Fabricators record.	IRC 83 Part-III	After load testing DP test and ultrasonic testing of bearings to be done for checking any damage during testing before final clearance.

Note: 1. Firm should maintain traceability of raw material used for fabrication of every POT-PTFE bearings and the record should be made available to the inspecting authority on demand.

2. Certificate of Elastomeric should not be older than 6 months.

3. Certificate of PTFE should not be older than 1 year.