TRANSNET
freight rail

A Division of Transnet SOC Limited

TECHNOLOGY MANAGEMENT

SPECIFICATION

HOT DIPPED GALVANISING AND PAINTING OF ELECTRIFICATION STEELWORK

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Transnet Freight Rail

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1.0 SCOPE

1.1 This specification covers Transnet Freight Rail's requirements for the hot dipped galvanising and painting of electrification steelwork.

1.2 The extent of work includes galvanising and painting of steelwork consisting of universal column masts with welded on bases up to 14 m in length and small part of steelwork consisting of channel, angle and flat iron fittings, welded assemblies and tubular cantilevers.

1.3 Appendix A depicts the scheduled of requirements and quantities.

2.0 REFERENCES AND GLOSSARY

2.1 Unless otherwise specified all materials used and equipment developed and supplied shall comply with the current equivalent edition of the relevant SANS, IEC or Transnet Freight Rail publications where applicable.

2.2 The following publications/specifications (latest editions) are referred to herein:

SANS 32: Internal and/or external protective coatings for steel tubes – specification for hot dipped galvanized coatings applied in automatic plants.

SANS 1091: National colour standards.

3.0 METHOD OF TENDERING

3.1 Tenderers shall indicate clause-by-clause compliance with this specification. This shall take the form of a separate document listing all the specifications clause numbers indicating the individual statement of compliance or non-compliance. This document can be used by tenderers to elaborate on their response to a clause.

3.2 A statement of non-compliance shall be motivated by the tenderer.

3.4 Failure to comply with clauses 3.1 and 3.2could preclude a tender from consideration.

4.0 SERVICE CONDITIONS

4.1 ENVIRONMENTAL CONDITIONS

The equipment shall be designed and rated for installation and continuous operation under the following conditions:

Altitude:	0 - 1800 m above sea level
Relative humidity:	10% to 90%
Ambient temperature:	-10° C to +55° C
Lightning conditions:	20 ground flashes/km^2 per annum
Pollution:	Heavily salt laden with industrial pollutants including diesel-electric locomotive emissions
Radiation:	The device shall be used in environments exposing it to UV radiation

5.0 GALVANISING OF STEELWORK

5.1 The steelwork must be cleaned and hot dip galvanized to SANS 32 except for the following:

5.1.1 No ammonium chloride salts shall be used on withdrawal from molten zinc.

5.2 After galvanising no passivation must take place. Quenching may be done with clean water. No sodium dichromate shall be used.

5.3 All surfaces contamination of zinc oxide (zinc ash) shall be removed by means of brushing.

6.0 PRIMER COATING

6.1 The hot galvanising shall be followed as soon as is practical by the painting procedures as specified hereunder :

6.1.1 Prior to painting, all steelwork shall be cleaned with a solvent cleaner and washed down with clean water to remove all traces of solvent. The solvent cleaner used must be compatible with zinc (similar to Galv clean/OptiDegreaser).

6.1.2 The primer coating, a two-component polyamide cured epoxy primer eg: OptiGuard universal EP primer or equivalent shall be applied to a dry film thickness of 75 microns. Application shall be in accordance with the manufactures instruction.

6.1.3 The primer coating shall be allowed to cure for a minimum period of 48 hours before handling to facilitate coating of the surfaces as well as application of the intermediate coat.

6.1.4 A coat of two-component high-build micaceous iron oxide pigment polyamide cured re-coatable epoxy eg: OptiGuard universal M10 or equivalent shall be applied to a wet film thickness of 125-275 microns. Application shall be in accordance with manufacturers.

6.1.5 A further 48 hours period must be allowed for curing of primer coatings before handling the steel work for transportation purposes.

6.1.6 Alternatively the following single pack water based system may be used:

6.1.6.1 Apply one coat of OptiPrimerAqua or equivalent at a 100 micrometer wet film thickness. Dry Film Thickness: 35 micrometers.

6.1.6.2 Apply an intermediate coat of OptiRustBusta or equivalent at a 175 micrometer Dry film thickness (400g/m^2).

6.1.6.3 Apply a film topcoat of OptiRustBusta or equivalent at 175 micrometer Dry Film Thickness (400g/m^2). The colour as per 7.1.2.1 shall be French grey (SANS 1091: code H30). The colour as per 7.1.2.2 shall be medium sea grey (SANS 1091: code G24).

6.2 All care must be exercised during handling to prevent damage of the painted surfaces.

6.3 Loading of steelwork must be done in such a way to limit damage of surfaces to minimum during transit.

6.4 Only non-metallic slings should be used, preferably nylon or cotton material.

6.5 Transnet Freight Rail reserves the right to inspect the premises where this work is carried out at any time during the duration of galvanising and primer painting.

6.6 Transnet Freight Rail shall inspect all steelwork at the tenderers premises before dispatch of any such steelwork.

7.0 TOP COATING

7.1 The topcoat shall be applied directly after erection of the steelwork in accordance with procedures hereunder:.

7.1.1 Damage of the primed surfaces shall be repaired, after erection, by the application of one or more coats of two component high-build micaceous iron oxide pigmented polyamide cured re-coatable epoxy coating e.g.: OptiGuard universal M10 or equivalent until the film thickness is obtained.

7.1.2 A topcoat of two-component aliphatic isocyanate cured acrylic finish e.g.: OptiThane 421 or equivalent shall be applied in according to the paint manufacturer’s instructions to a minimum dry film thickness of 50 microns. The topcoat shall be determined by whether steelwork is for Transnet Freight Rail or PRASA.

7.1.2.1 For Transnet Freight Rail the colour shall be Frenchy grey (SANS 1091:code H30).

7.1.2.2 For PRASA the colour shall be medium sea grey (SANS 1091:code G24).

8.0 QUALITY

8.1 The tender shall submit a copy of Quality Plan to be implemented during the process. The quality shall include stages for preparation of metalwork prior to galvanisation, for galvanising and for painting process.

8.2 The Quality Plan shall furthermore make provision for the customer's requirements for inspection and acceptance points and witnessing of tests to establish whether requirements of SANS 32 in so far as preparation of steel work prior to galvanising, galvanising and painting requirements as per this specification are complied with.

9.0 SUBSTITUTION

9.1 This specification replaces specification CEE.0183-issue 2002.

9.2 All clauses have been revised to suit latest requirements.

END

APPENDIX A:

SCHEDULE OF REQUIREMENTS AND QUANTITIES

(To be filled in by Transnet Freight Rail representative)

1.0

END

For Transnet Freight Rail: _____

Grade: _____