
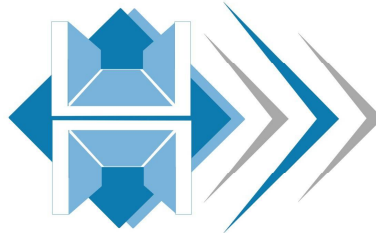


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**HOT DIP
GALVANIZERS
ASSOCIATION**
SOUTHERN AFRICA




HOT DIP GALVANIZING AND DUPLEX CORROSION PROTECTION SPECIFICATION

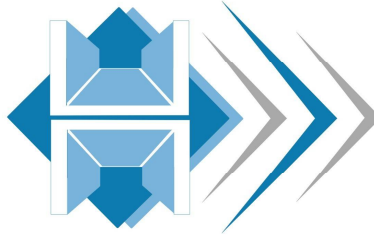
This Specification has been prepared for the use of manufacturers, contractors, engineers and others involved in the design or application of Duplex Systems. It has been compiled from work carried out by a co-ordinating committee drawn from industry. While recognising that each system must be designed and applied to meet particular circumstances, the committee assumes no responsibility or liability of any kind, in connection with this Specification or its use by any person or organisation and makes no representation or warranties of any kind hereby.

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**HOT DIP
GALVANIZERS
ASSOCIATION
SOUTHERN AFRICA**




ENGINEERING SPECIFICATION

HOT DIP GALVANIZING AND DUPLEX CORROSION PROTECTION

APPROVED AND ACCEPTED BY

	POSITION	DATE	SIGNATURE
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1. APPROVED GALVANIZER

A South African Bureau of Standards (SABS) approved company shall undertake all hot dip galvanizing, which is an accredited member of the Hot Dip Galvanizers Association Southern Africa.

2. QUALITY STANDARDS

The hot dip galvanized coating shall conform in every respect to the standards contained in the South African National Standards, SANS 121 (ISO 1461) and SANS 32 (En 10240), Hot Dip Galvanizing specification for products other than continuously galvanized sheet and wire.

2.1 QUALITY CONTROL


The hot dip galvanizer shall provide a quality management plan detailing inspection procedures, which will include inspection of steel prior to galvanizing, inline inspection during surface preparation and galvanizing and final inspection prior to despatch. Where fabrication defects are identified prior to galvanizing, e.g. burrs, poor welding or excessive weld spatter, such components shall be placed on hold and a non-conformance report submitted to the fabricator.

- Double end dipping shall be permitted provided that it will not result in distortion of the product and an acceptable surface finish of the coating is achieved.
- Bolts, nuts and other fastening devices shall be hot dip galvanized. Zinc electroplating (electro-galvanizing) is unacceptable. All fasteners shall be supplied by a SABS approved manufacturer.
- High tensile fasteners from grade 10.9 and above shall be hot dip galvanized in conformance to a code of practice (SANS 10094, annex B). The hot dip galvanizer shall issue a certificate of compliance with this requirement.

2.2 COATING REPAIRS

Any coating repairs undertaken on the galvanizers premises or later on site, e.g. touch up of small-uncoated surfaces (black spots), shall be strictly limited both in dimension and quantity as stipulated in the relevant SANS 121 (SABS ISO 1461) specification.

- Uncoated areas and defects shall be repaired by abrading surfaces with 80 grit sandpaper and painting with Galvpatch or approved equal twin pack zinc rich epoxy paint, achieving an 5mm overlap

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and to a minimum thickness of 30µm above the mean coating thickness specified in terms of SANS 121 (ISO 1461). The repaired surface shall not be accepted or despatched until the repaired surface coating has cured.

- Where coating defects exceed the specified permissible limit, which qualifies for touch-up repairs after galvanizing, affected items shall be rejected and regalvanized.
- ***Final Inspection:***

After the final inspection has been completed satisfactorily, the galvanizers' inspectorate shall issue a certificate stating that the applied coating conforms to the requirements of SANS 121 (ISO 1461) or SANS 32 (En 10240).

3. QUALITY SURVEILLANCE

- 3.1** "The client" may employ an independent technically qualified organisation to carry out Quality Surveillance of the work on its behalf. In the event of dispute, the decision of "The client" shall be final.
- 3.2** For the purpose of carrying out quality surveillance, "The client" or its QA / QC Consultant shall be granted access to any part of the galvanizers premises relevant to the work being carried out, at any reasonable time. The galvanizer shall provide, at his own cost, any equipment or labour necessary to gain access to surfaces which are coated, to be coated or are in the process of being coated.
- 3.3** "The client" may remove any reasonable samples of materials to be used in the coating application. Rejection of the sample will place a hold on the use of material of the same batch number and may lead to rejection of all that batch of material and the reworking of any components that have already been coated with rejected material.
- 3.4** "The client" may carry out reasonable destructive tests to ascertain compliance with the specification. The contractor to the satisfaction of "The client" at no additional cost shall repair areas thus damaged.
- 3.5** The cost of quality surveillance will be borne by "The client", except where surveillance results in rejection of the work or when notice by the contractor results in a fruitless trip, in which case the contractor shall carry the cost of surveillance.
- 3.6** The inspector shall complete a report at each visit. A copy of the report shall be given to the galvanizing company.

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4. DATA BOOK

- 4.1 Upon completion of the works, the contractor shall provide “The client” with a Data Book containing all the relevant Quality Control documents and records pertaining to the works.
- 4.2 The contractor shall submit one copy of the Data Book to “The client” and keep one copy for his own records.

5. HANDLING AND STORAGE

The following precautions shall be taken for storage of coated items.

5.1 HANDLING

All coated components shall be handled using soft slings or specially positioned lifting points provided for such handling.

5.2 LOADING

All hot dip galvanized and duplex coated components to be transported shall be loaded on suitable dunnage and lashed to avoid chafing and steel to steel contact. Plastic “Spaghetti strips” must be used to protect smaller items of steel and angles (5mm spaghetti plastic coil). Coated steel shall be secured on the truck preferably with nylon securing straps. Where chains must be used, rubber insertion pads must be placed between the coated steel and chains at all contact points.

5.3 UNLOADING


Off-loading at site shall be conducted using the same care and precautions as required for on loading.

Components shall not be tipped off the transportation.

5.4 COVER

Coated items shall be stored under cover where possible.

Items not stored under cover shall be stored in such a manner as to avoid retention of water and allow good circulation. Items shall be stored on timber or on trestles fitted with timber to raise the product to at least 500mm off the ground.

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5.5 STACKING

Items shall be stacked using timber packaging or other approved means to avoid coating-to-coating contact. Sufficient baring area of packing shall be used to avoid damage to coatings.

6. SITE REPAIRS

Modifications, transportation and erection damage, shall be repaired by abrading with 80 grit sand paper and painting with Galvpatch or approved equal twin pack zinc rich epoxy paint, achieving an overlap of 5mm onto the surrounding sound zinc coating and to a minimum thickness of 30µm above the mean coating thickness specified for the hot dip galvanized coating. Steel shall not be accepted until the repaired surface has cured.


Black steel utilised in modification with galvanized steel shall be abrasive blast cleaned to Standard Sa 2½ to obtain a surface profile of 40 to 70 microns. Once the surface profile has been inspected and certified, apply zinc thermal sprayed coating to a minimum thickness of 120µm.

Alternatively, black steel utilised in modifications with hot dip galvanized steel shall be abrasive blast cleaned to Standard Sa 2½ per International Standard ISO 850/1 – 1988 to obtain a surface profile of 40 to 70 microns. Once the surface preparation has been inspected and certified, apply one coat of Galvpatch or approved equal twin pack zinc rich epoxy paint, achieving an overlap of 5mm onto existing sound hot dip galvanized coating where black steel is welded to hot dip galvanized components. Dry film thickness shall be 30µm above the mean coating thickness specified for the hot dip galvanized coating.

Where site modifications of a hot dip galvanized surface is required, all traces of the hot dip galvanized coating shall be ground off prior to welding. Removal of the zinc coating from surfaces to be welded, is necessary in order to prevent possible weld metal embrittlement or zinc residue inclusions.

APPROVED COATINGS

Brand Name	Manufacturer / Supplier
Primer	To be approved by the engineer
Galvpatch	Hot Dip Galvanizers Association S.A.

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7. DUPLEX COATING (HOT DIP GALVANIZING PLUS PAINT)

This specification covers the painting of hot dip galvanized steel other than sheet and wire. The requirements for the painting of hot dip galvanized sheet are contained in document SEP / SAZ 511 “Surface Preparation and Painting”.

7.1 All hot dip galvanized steel to be painted shall be certified as conforming to the required hot dip galvanizing quality standard, prior to painting.

7.2 Painting shall take place as soon as possible after galvanizing, preferably at the galvanizing contractor’s premises. If this is not feasible for practical reasons, painting on site is acceptable, but shall be in accordance with **7.3**.

7.3 Code of Practice for Painting Hot Dip Galvanized Steel:


Painting procedures shall comply with the requirements contained in SAHDGA standard – 1990, Specification for the Performance Requirements of Coating Systems and specification 01-1990, Code of Practice for Surface Preparation and Application of Organic Coatings.

- Adequate surface preparation can be achieved by way of chemical cleaning. Surface sweep blasting is, however, the preferred procedure.
- **Warning:** Sweep blasting shall be undertaken strictly in accordance with the procedures as specified in the code of practice, with particular reference to the selection of the appropriate abrasive, blasting nozzle pressure and angle of deflection of the blasting media. Failure to do so will result in damage of the galvanized coating.

8. SELECTION OF PAINT SYSTEM FOR DUPLEX PROTECTION

9. QUALITY CONTROL AND SURVEILLANCE

All relevant requirements provided in Specification SEP/SAZ/511 (Surface Preparation and Painting) shall also apply to Duplex coatings. (painting of hot dip galvanized steel).

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10. RELATED DOCUMENTS

All national and international standards referred to in this document shall form part of this specification. Where reference is made to a code, specification or standard the reference shall be taken to mean the latest edition of the code, specification or standard, including addenda, supplements and revisions thereto.

10.1 SOUTH AFRICAN NATIONAL STANDARDS (SANS)

SANS 121 (ISO 1461) Hot Dip Galvanized zinc coatings (other than continuously zinc-coated sheet and wire).

SANS 32 (En 10240) for Hot Dip Galvanized Pipe produced on an automatic or semi-automatic tube plant.

10.2 INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

ISO 9002 Quality Management System.

10.3 SOUTH AFRICAN HOT-DIP GALVANIZERS' ASSOCIATION

No HDGASA 01-1990 Code of Practice for Surface Preparation and Application of Organic Coatings

No HDGASA 02-1990 Specification for the Performance Requirements of Coating Systems

Weber-Reilly soluble salts test method: Test for soluble salts.