



**Specific Rules For Certification of Reinforcing Steel Bars (BS 4449:2005)
Through Factory Assessment**

Dubai Central Laboratory- Inspection And Certification Section

Doc. Ref :RD-DP21-2129 (IC)

Rev. No.: 7

Issue Date :05-05-2010

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Issue Date	Rev. No.	Summary Of Amendments
05-07-2006	0	First draft for comments
18-07-2006	0	Final draft
30-07-2006	1	Issue for use
19-03-2008	2	Re issue to include no. of samples and minimum required equipment
17-4-2008	3	Re issue to modify clause 8.1.2.2 independent testing plan; change the frequency of testing for chemical analysis from once a year to every three months
12-05-2008	4	Re issue to be consistent with the other specific rules for steel bars
20-05-2008	5	Re issue to modify clause 7.3.2.2; changes in table in clause 8.1.2.2
16-08-2009	6	Document reference number and format is changed according to the new IMS, statement for the independent testing plan was changed, and the statement for surveillance was shortened by referring the appropriate procedure, RD-DP21-2096 (IC).
05-05-2010	7	Re issue to modify clause 7.1.3; change the number of samples for testing from 15 to 10 pieces

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1. INTRODUCTION

- 1.1 This document prescribes the specific rules for the implementation of the DM Third Party Product Certification System Through Factory Assessment as applied to the specific product(s) identified herein, taking into consideration the applicable normative references and standard specifications.
- 1.2 The applicant shall comply with these specific rules, **and** to those already mentioned in the “General Rules for DM Third Party Product Certification System Through Factory Assessment“{**RD-DP21- 2001 (IC)**}.

2. SCOPE

- 2.1 This specific rule specifies requirements for ribbed weldable reinforcing steel used for the reinforcement of concrete structures. Steel delivered in the form of bars, coils and decoiled products are covered by this document. It covers three steel grades, all of 500 MPa characteristic yield strength, but with different ductility requirements. The three grades are B500A, B500B, and B500C.

3. PRODUCT IDENTIFICATION AND APPLICABLE STANDARD/NORMATIVE REFERENCE

- 3.1 Product Name: Weldable Deformed and Plain Carbon-Steel Bars and Coils for Concrete Reinforcement
- 3.2 Applicable standard/Normative reference: BS 4449:2005 - Steel for the reinforcement of concrete – Weldable reinforcing steel – Bar, coil and decoiled product - Specification
- 3.3 Additional References:
- 3.3.1 ISO 9001:2008 - Quality Management System – Requirements
- 3.3.2 ISO 19011:2002 - Guidelines for Quality and Environmental Management System Auditing.

4. DEFINITION OF TERMS

In addition to the definitions given in BS 4449:2005, **RD-DP21-2001 (IC)**, the following shall apply:

- 4.1 Independent Testing Laboratory - Dubai Central Laboratory (DCL) or any testing laboratory recognized by the DM Certification Body.
- 4.2 Independent Test – test performed or conducted by an Independent Testing Laboratory
- 4.3 Standard Specification – BS 4449:2005 Steel for the reinforcement of concrete – Weldable reinforcing steel – Bar, coil and decoiled product - Specification
- 4.4 Product Quality Assurance Plan – a document being agreed upon both by the Licensee and the certification body being used to ensure continuous compliance of the certified product.
- 4.5 QMS – Quality Management System aligned with the requirements of ISO 9001:2008 Standard

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5. APPLICATION

- 5.1 Manufacturer of reinforcing steel bars and coils shall apply to Dubai Central Laboratory through Inspection and Certification Section for the license to use the DCL Conformity Mark.
- 5.2 Application forms shall be filled-up by the applicant-company together with the following documents
- 5.2.1 Trade License
 - 5.2.2 Complete Product Description and Specifications
 - 5.2.3 Brief Description of Manufacturing Process
 - 5.2.4 Copy of the Quality Manual – In English
 - 5.2.5 Vicinity Map and Factory Layout
 - 5.2.6 Valid Certification to ISO 9001 (if available)
 - 5.2.7 List of key personnel and their designation
- 5.3 Separate application shall be submitted for each product type or group of products that refers to a different specific rules.

6. REQUIREMENTS FOR INITIAL FACTORY ASSESSMENT

- 6.1 DCL duly authorized representative(s) shall visit the applicant's factory/plant with the aim of ascertaining that the factory's quality management system is in accordance with the requirements of ISO 9001:2008.
- 6.2 An independent certification to ISO 9001 issued by a QMS certification body recognized by DM shall be considered as having satisfied this requirement; however, the DM Certification Body will still carry out verification audit to confirm that the factory is in compliance with the QMS requirements.
- 6.3 Verification audit shall be conducted by designated audit team based on ISO 19011:2002 – Guidelines for Quality and Environment Management System Auditing.
- 6.4 Minimum Required Test Equipments

The manufacturer of carbon steel bars produced as per standard specification shall have the following minimum test equipment to check product compliance with the requirements of standard specification.

- 6.4.1 Calipers and other linear measuring test equipments
- 6.4.2 Weighing Scale (with an accuracy of 100 grams)
- 6.4.3 Chemical Analyzer
- 6.4.4 Tensile Test Equipment
- 6.4.5 Bend Test Equipment

7. REQUIREMENTS FOR INITIAL TESTING OF THE PRODUCT

- 7.1 Sampling
- 7.1.1 Three sets of samples per size within the size range shall be taken randomly. The first set shall be tested in the plant supervised by a duly authorized DCLD-ICS representative, the second set will be sent to independent testing laboratory. The third set will be kept by the manufacturer as reference for future use.

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- 7.1.2 Test sample(s) for independent test shall be packed/sealed and signed in the presence of DCLD-ICS representatives and shall be submitted to an independent testing laboratory by the DCLD-ICS representatives.
- 7.1.3 Number of Samples for testing shall be at least 10 pieces by one meter length per size within the size range.

7.2 Product Evaluation and Testing

7.2.1 Chemical Composition

The values of individual elements and the carbon equivalent shall not exceed the limits given in Table 2 of the Standard Specification.

7.2.2 Mechanical Properties

Note: All bars shall be free from defects such as seams, porosity, segregation and metallic inclusions, which can adversely affect the mechanical properties.

7.2.2.1 Tensile properties of the bars shall comply with the characteristic values specified in Table 4 of Standard Specification.

7.2.2.2 Fatigue strength shall comply with clause 7.2.4 of the standard specification. However, previously carried out Fatigue Tests by a laboratory that meets the requirements of RD-IC-0002 maybe accepted by the DCLD-ICS, if available. It shall show that reinforcing bars, coils and decoiled products shall endure 5 x 10 to the 6th power cycles of stress.

7.2.2.3 Bend Performance as per 7.2.5 of the Standard Specification shall show no sign of fractures or cracks visible to a person of normal or corrected vision.

7.2.3 Dimensions, mass per meter and tolerances shall comply with the requirements as specified in section 7.3 of the Standard Specification.

7.2.4 Bond Strength and Surface Geometry of the bars shall comply with the requirements specified in section 7.4 of the Standard Specification.

7.2.5 Product Marking shall be as per the Marking and Tag Requirements for the Control of Reinforcing Steel Bars, RD-DP21-2091 (IC).

7.2.6 Independent tests shall only be conducted if the result of the in-plant test shows satisfactory results.

7.2.7 If the result of any test conducted by the independent testing laboratory shows non-conformance to the specified requirements, the retest shall be carried out on the reference sample kept by the manufacturer, or on new samples collected by DM Certification Body, in which full testing shall be carried out, if necessary.

7.2.8 If the retest passed, the initial product assessment is considered conforming to product specification. If not, the manufacturer will be advised to take corrective action.

7.2.9 Only after reassessment and subsequent product compliance shall the manufacturer be allowed to use the DCL Conformity Mark.

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7.2.10 All test results shall be held strictly confidential by the independent testing laboratory concerned. Copies of the results will be provided only to the DCLD-ICS and the manufacturer.

8. COMPLIANCE AND RESPONSIBILITIES OF THE LICENSEE

8.1 Compliance

8.1.1 When the results of the factory and product assessments show conformity to the requirements specified in the General Rules and Specific Rules, the license to use the DCL Mark shall be issued to the manufacturer for the type(s)/model(s) within the size range of the product tested.

8.1.2 The factory shall agree with the DM Certification Body for the preparation and implementation of a product quality assurance plan to ensure continuing compliance with the standard specification and the requirements of this certification scheme. The plan shall consist of (1) an internal product quality assurance, and (2) an independent testing plan

8.1.2.1 Internal product quality assurance plan

The factory shall prepare and submit to DCLD-ICS for approval an internal product quality assurance plan giving details of the tests to be carried out at the factory. This will include as a minimum, the following details: (1) location of sampling; (2) frequency of sampling (3) quantities of samples; (4) tests to be carried out; (5) results acceptance criteria; and (6) responsible person to carry out the activity.

The plan shall take into consideration the production process, the volume of production, the criticality of the test to be specified, and other relevant factors.

8.1.2.2 Independent testing plan

The factory shall agree to an independent testing plan to be carried out on samples which are collected in accordance with RD-DP21-2096 (IC) – Surveillance of Licensed Establishments under the Factory Assessment Scheme, and implemented by the DM Certification Body.

8.2 Responsibilities of the Licensee

8.2.1 The licensee shall ensure that his product, for which a license has been issued, conforms at all times to the requirements of the General Rules and Specific Rules and shall maintain to the satisfaction of DCL, a system of quality control including inspection and testing.

8.2.2 The licensee shall give the duly authorized representative(s) of DCL, access during working hours, without prior notification, to the premises of the factory where certified product is manufactured, for the purpose of evaluating the materials, production processes, finished products, quality assurance facilities, records and others in accordance with the requirements of the scheme.

8.2.3 The licensee shall inform the DM Certification Body in writing of any change of management, transfer of plant site, modification in the product, manufacturing process or factory's quality management system.

8.2.4 Upon transfer of plant site, the license shall be deemed valid only after factory and product audit at the new site has been satisfactorily completed.

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8.2.5 Any infraction stated in the Terms and Conditions for the use of DCL Conformity Mark shall constitute sufficient grounds for suspension, withdrawal and cancellation of the license against a licensee.

8.2.6 Any dispute that may arise in connection with the Terms and Conditions for the use of DCL Conformity Mark shall be settled in accordance with the General Rule for DM Third Party Product Certification System through Factory Assessment.

9. SURVEILLANCE

DM Certification Body shall carry out periodic surveillance to ensure consistent compliance with the requirements of this certification scheme as per RD-DP21-2096 (IC) – Surveillance of Licensed Establishments under the Factory Assessment Scheme.

10. USE OF THE DCL CONFORMITY MARK

10.1 The design and use of the DCL Conformity Mark shall be in accordance with the Markings and Tag Requirements for the Control of Reinforcing Steel Bars in the Emirate of Dubai, RD-DP21-2091 (IC).

10.2 The licensee shall submit a product-marking proposal for approval by the DM Certification Body. The proposal shall include drawings and/or diagrams showing the location and size of the marking for each size of the product/product container.

10.3 The license to use the DCL Conformity Mark is non-transferable.

11. FEE SCHEDULE

11.1 The licensee shall pay the applicable fees and charges related to the granting of the license to use the DCLD Conformity Mark based on the Fee structure for the control of reinforcing steel bars in the Emirate of Dubai, RD-DP21-2092 (IC).

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