

 GOVERNMENT OF DUBAI	Organization/Unit:	إدارة مختبر دبي المركزي Dubai Central Laboratory Department	الوحدة التنظيمية:	 بلدية دبي DUBAI MUNICIPALITY
	Document Title:	Specific Rules for FA Certification of Reinforcing Steel Bars as per BS 4449: 1997 Amd 1	عنوان الوثيقة:	
	Doc Ref.	DM-DCLD-RD-DP21-2147 (IC)	رقم الوثيقة :	

Issue Date	Rev. No.	Summary Of Amendments
07-01-2008	0	First draft for comments
08-01-2008	0	Final draft
13-01-2008	1	Issue for use
19-03-2008	2	Re issue to include Independent Testing Plan
06-04-2008	3	Insertion of Notations in clause 7.3.2.3 and clause 7.3.2.4
17-04-2008	4	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	5	Re issue to be consistent with the other specific rules for steel bars
20-05-2008	6	Re issue to modify clause 7.3.2.2; changes in table in clause 8.1.2.2; changes in clause 9.4.8
16-08-2009	7	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	8	Re issue to modify clause 7.1.3; change the number of samples for testing from 15 to 10 pieces
23-09-2010	9	Re issue to incorporate the following: Amended as per new documentation structure; and Specifying clearly the Factory Production Control System (Internal Product Quality Assurance Plan)
11-03-2019	10	Updating the format as per new DM template and new DM logo
09-08-2020	11	Add the options for initial audit by the approved CAB and remotely by PCAS. Adding definition for authorized auditor. Update for the new numbering system and followed terminologies. Add provision for accepting valid test reports
26-09-2021	12	Removal of the documents in clause 2.1.2, in addition to further amendment in the provision for accepting valid test reports (clause 2.4.1.4), in line with DM 30% reduction of requirements (both service and specialized). Modifications in the auditing part for the factories already certified against ISO 9001 to opt for auditing only the areas of production and monitoring stages of product realization, quality control and final product testing and evaluation. Amended the length of the selected samples to be "specified length by the laboratory" instead of one meter length in clause 2.4.1.8

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1. GENERAL

1.1 INTRODUCTION

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

1.2 SCOPE

- 1.2.1 This specific rule covers requirements for weldable steel bars for reinforcement of concrete. It covers plain round steel bars in grade 250, and deformed (type 1 and type 2) high yield steel bars in grade 460, the latter in two ductility categories, 460A and 460B.

1.3 PRODUCT IDENTIFICATION AND APPLICABLE STANDARD/NORMATIVE REFERENCE

- 1.3.1 Product Name: Carbon Steel bars for the reinforcement of concrete
- 1.3.2 Applicable standard/Normative reference: BS 4449:1997 with Amd 1– Carbon Steel bars for the reinforcement of concrete and the reference documents referred to in this standard.
- 1.3.3 Additional References:

ISO 9001 Quality Management System – Requirements

ISO 19011 Guidelines for Auditing Management Systems

1.4 DEFINITION OF TERMS

The definitions given in BS 4449:1997 with Amd 1, DM-DCLD-RD-DP21-2001 (IC) and in addition, the following shall also apply:

- 1.4.1 Independent Testing Laboratory - Dubai Central Laboratory (DCL) or any testing laboratory recognized

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by DCLD-PCAS.

- 1.4.2 Independent Test – test performed or conducted by the recognized Independent Testing Laboratory
- 1.4.3 Standard Specification – BS 4449:1997 with Amd 1– Carbon Steel bars for the reinforcement of concrete
- 1.4.4 Factory Production Control System (Product Quality Assurance Plan) - a document being agreed upon both by the client and DCLD-PCAS being used to ensure continuous compliance of the certified product.
- 1.4.5 QMS – Quality Management System aligned with the requirements of ISO 9001 Standard.
- 1.4.6 Client – Manufacturer of reinforcing steel bars
- 1.4.7 DM Certification Body: Dubai Central Laboratory Department-Products Conformity Assessment Section (DCLD-PCAS)
- 1.4.8 Authorized auditor : is any approved auditor by DCLD-PCAS either internal within DCLD or external (Approved CAB's auditor or approved auditor based on a signed contract)

2. REQUIREMENTS FOR CERTIFICATION

2.1 APPLICATION

- 2.1.1 The client shall apply to DCLD-PCAS for the Certification and authorization to use the DCL Conformity Mark.
- 2.1.2 Application form shall be submitted by client to DCLD-PCAS
- 2.1.3 Separate application shall be submitted for each product type or group of products that refers to a different specific rules.

2.2 FACTORY OPERATION

2.2.1 Quality Management System

The client shall have a Quality Management System that is aligned to the requirements of ISO 9001 standard.

NOTE : Having a certificate of ISO 9001 is not a mandatory requirement; however the structure of the manufacturer's QMS shall be in line with its requirements.

2.2.2 Laboratory

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The client shall have a quality assurance laboratory to carry out factory production control testing to ensure that the reinforcing steel bars and coils comply with the requirements of the standard specification.

As a minimum requirement, the laboratory shall have the following testing equipment:

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

2.2.3 Bar Marking Requirements

The client shall submit to DCLD a unique bar marking requirements of their products for approval. The DCLD approved mark shall be applied to the products covered by the certification.

Product Marking shall be as per the General Rules on the Markings and Tags of Steel Bars, DM-DCLD-RD-DP21-2091 (IC).

2.3 INITIAL FACTORY AUDIT

- Initial factory audit will be carried out by duly authorized auditor(s) which will cover auditing of the quality management system to verify its compliance with the requirements of ISO 9001, in addition to verify the implementation of DCLD-PCAS certification's requirements. Where possible; the audit can be carried out remotely as per (DM-DCLD-RD-DP21-2098 (IC) Guidelines for Remote Audit) or as per the related approved guidelines which are followed by the approved outsourced CAB.

NOTE: An independent certification to ISO 9001 issued by a QMS certification body recognized by DCLD-PCAS may be considered as having satisfied this requirement; however, DCLD-PCAS may still opt to carry out verification audit to confirm that the factory is in compliance with requirements of DCLD certification schemes and rules, mainly the areas of production and monitoring stages of product realization, quality control and final product testing and evaluation.

- Factory audit shall be conducted by designated audit team in accordance with ISO 19011 – Guidelines for Auditing Management Systems

2.4 PRODUCT EVALUATION

2.4.1 Sampling

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- 2.4.1.1 Sampling for initial testing shall be taken randomly by the authorized auditor from the products to be certified (sizes and quantity to be determined) either from production lines or the factory warehouse, in accordance with the requirements of ASTM C390
- 2.4.1.2 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 auditor, the second set will be sent to DCLD-PCAS approved independent testing laboratory. The third set will be kept by the client as reference for future use.
- 2.4.1.3 Test sample(s) for independent test shall be packed/sealed and signed in the presence of the authorized auditor and shall be submitted to DCLD-PCAS approved lab.
- 2.4.1.4 Where applicable, Independent test should only be conducted if the result of the in-plant test shows satisfactory result. DCLD-PCAS shall accept available valid test reports conducted by an approved DCLD-PCAS independent laboratory within one year from the date of the initial assessment, in line with the internal quality control testing plan of the factory. In such case, the testing of that particular parameter(s) shall be waived accordingly.
- 2.4.1.5 If the result of the test conducted by the DCLD-PCAS approved independent testing laboratory shows non-conformance, the retest shall be carried out on the reference sample kept by the client or on new samples collected by the authorized auditor, on which full testing shall be carried out, if necessary.
- 2.4.1.6 If the retest passed, the initial product assessment is considered conforming to product specification. If not, the client will be advised to take corrective action.
- 2.4.1.7 Only after reassessment and subsequent product compliance shall the client be allowed to use DCL Conformity Mark on his product(s) that have been tested and found complying with the certification requirements.
- 2.4.1.8 Number of Samples for testing shall be at least 10 pieces with specified length by the laboratory per size within the size range per grade.

2.4.2 Product Evaluation and Testing

- 2.4.2.1 The product shall conform to the requirements as specified in clauses 5, 6, 8, 9, 11, and 12 of the standard specification, BS 4449:1997 with Amd 1.

- 2.4.2.2 Tests to be carried out in accordance with BS 4449:1997 with Amd 1 requirements and shall have values as

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follows;

2.4.2.2.1 Cross sectional area and mass shall be as per Table 2

2.4.2.2.2 Nominal length shall not deviate by +100 mm and no negative tolerance or as agreed at the time of enquiry and order

2.4.2.2.3 Chemical composition shall be as per Table 4

Note: ASTM E:415:2005 maybe used in determining the chemical analysis

2.4.2.2.4 Carbon Equivalent shall be as per Table 5

Note: ASTM E:415:2005 maybe used in determining the chemical analysis

2.4.2.2.5 Mechanical Tests to include Tensile, elongation at break, Yield strength, Elongation at fracture shall be in accordance with Table 7

2.4.2.2.6 Rebend shall show no sign of fracture or irregular bending deformation when subjected to Annex E.1.6

2.4.2.2.7 Bond classification shall be as per clause 9 of the relevant standard. For steel bars that do not conform to the surface shape and bond classification in clause 9.2, it shall be determined by bond classification by performance in accordance in with clause 9.3. Bond test shall show a free end slip of not more than 0.2 mm when subjected to pull out test. Certificate of Bond Tests issued by an accredited laboratory whose scope of testing covers bond test can be accepted by the DCLD-PCAS, if available.

2.4.2.2.8 Fatigue strength shall comply with clause 12 of the standard specification. However, previously carried out Fatigue Tests by a laboratory that meets the requirements of DM-DCLD-RD-IC-0003 maybe accepted by the DCLD-PCAS, if available. It shall show that reinforcing bars, coils and decoiled products shall endure 5 x 10 to the 6th power cycles of stress.

3. GRANTING OF THE DCL CERTIFICATION

3.1 CONDITIONS FOR GRANTING THE DCL PRODUCT CONFORMITY CERTIFICATE

3.1.1 When the results of the factory audit (clause 2.3) and product evaluation (clause 2.4) show conformity to the requirements specified in the General Rule and Specific Rule, the Certificate of Conformity and authorization to use the DCL Conformity Mark shall be issued to the client for the type(s) and size range of the product covered by the assessment.

3.1.2 The client shall agree with DCLD-PCAS for the preparation and implementation of a product quality assurance plan to ensure continuing compliance with the Standard Specifications and the requirements of this certification scheme. It shall consist of (1) an internal product quality assurance plan, and (2) an independent testing plan.

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3.1.3 Factory Production Control System (Internal Product Quality Assurance Plan)

The client shall have 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, frequency of sampling and testing, and other relevant factors.

Frequency of sampling and testing shall be in accordance with annex E of the standard specification.

3.1.4 Independent Testing Plan

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

3.2 ISSUANCE OF DCL CERTIFICATE OF CONFORMITY

If the conditions mentioned in clause 3.1 above have been complied, the client shall be issued a DCL Certificate of Conformity and a Scope of Certification that covers the type(s) and size of the products that are certified and will be authorized to use the DCL Conformity Mark on the certified products.

3.3 RESPONSIBILITIES OF THE CERTIFIED CLIENT

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

3.3.2 The client shall give the duly authorized auditor(s), 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.

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- 3.3.3 The client shall inform DCLD-PCAS in writing of any change of management, transfer of plant site, modification in the product, manufacturing process or factory's quality management system.
- 3.3.4 Upon transfer of plant site, the certificate of conformity shall be deemed valid only after factory and product audit at the new site has been satisfactorily completed.
- 3.3.5 Any infraction stated in the terms and conditions of the certification scheme and the use of DCL Conformity Mark shall constitute sufficient grounds for suspension, withdrawal and termination of certification in accordance with DM-DCLD-IMS-RD-07.
- 3.3.6 Any dispute that may arise in connection with the Terms and Conditions of the certification scheme shall be settled in accordance with DM-DCLD-IMS-RD-08 Appeals, Disputes, and Complaints Procedure.
- 3.3.7 The client shall pay all applicable fees related to the certification process.
- 3.4 USE OF THE DCL CONFORMITY MARK
- 3.4.1 The design and use of the DCL Conformity Mark shall be in accordance with the Terms and Conditions for the Use of the DCL Conformity Mark, DM-DCLD-IMS-RD-13 and Specific Rules DM-DCLD-RD-DP21-2091(IC), for Marking and Tag Requirements for the Control of Reinforcing Steel Bars.
- 3.4.2 The client shall submit a product-marking proposal for approval by DCLD-PCAS. The proposal shall include drawings and/or diagrams showing the location and size of the marking for each size of the product/product tags.
- 3.4.3 The Certificate of Conformity and the authorization to use the DCL Conformity Mark is non-transferable.

4. SURVEILLANCE

- 4.1 DCLD-PCAS or their approved CAB shall carry out periodic surveillance to ensure consistent compliance with the requirements of this certification scheme as per DM-DCLD-RD-DP21-2096 (IC) – Surveillance of Certified Clients under the Factory Assessment Scheme.
- 4.2 Testing as part of the surveillance shall be in accordance with the Independent Testing Plan (clause 3.1.4) that has been agreed between DCLD-PCAS - and the client.

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5. FEE SCHEDULE

5.1 The client shall pay the applicable fees and charges related to the granting of the certificate of conformity and the authorization to use the DCL Conformity Mark based on the DCL Official Fee structure for the control of reinforcing steel bars in the Emirate of Dubai, DM-DCLD-RD-DP21-2092 (IC).

5.2 The fees for this certification scheme shall include but not limited to the following

- 5.2.1 Application Fee
- 5.2.2 Initial Assessment Fee
- 5.2.3 Certification Fee
- 5.2.4 Marking Fee
- 5.2.5 Surveillance Fee
- 5.2.6 Annual Renewal Fee
- 5.2.7 Testing Fee
- 5.2.8 Outsource Activity Fee , where applicable

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