

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

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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
04-10-2022	13	Changing section name as per the new organizational structure, and replace HOU by CQPSM (Section's Manager), also addition of surveillance in the clause 2.4.1.4
27-03-2023	14	Full re-structuring and transfer of common provisions to the general rule. Clauses are re-numbered and document title has been revised accordingly. Use of New DM Logo

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1. INTRODUCTION

- 1.1 This document prescribes the specific rule for certification of the product(s) as identified herein, in accordance with the requirements of DM Third Party Product Certification Scheme Through Factory Assessment, taking into consideration the applicable normative references and standard specification, in addition to the requirements for conformity evaluation, as stated below.
- 1.2 The applicant/client shall comply with this specific rule, and to all provisions under the **“General Rule for DM Third Party Product Certification Scheme Through Factory Assessment”DM-DCLD-RD-DP21-2001 (IC)**.
- 1.3 This specific rule **is an integral part of the general rule** and both shall always be read together.

2. SCOPE


- 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.
- 2.2 This specific rule does not -by itself- permit the use of the below product in the construction sites. However, it does provide the necessary general conformity assessment criteria, which are required for the evaluation and issuance of the certification and the authorization of the use of the DCLD Conformity Mark. Other relevant requirements issued by the regulatory bodies if any; shall always be fulfilled.

3 PRODUCT IDENTIFICATION AND APPLICABLE STANDARD/NORMATIVE REFERENCE

- 3.1 Product name: Carbon Steel bars for the reinforcement of concrete
- 3.2 Applicable standard/Normative reference: BS 4449:1997 with Amd 1– Carbon Steel bars for the reinforcement of concrete
- 3.3 Additional reference:
ISO 9001 Quality Management System – Requirements
ISO 19011 Guidelines for Auditing Management Systems

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4 DEFINITION OF TERMS

4.1 In addition to the definitions given in BS 4449:1997 with Amd and the General Rule of the scheme [DM-DCLD-RD-DP21-2001 (IC)], the following shall apply:-

4.1.1 Standard Specification – BS 4449:1997 with Amd 1– Carbon Steel bars for the reinforcement of concrete and the reference documents referred to in this standard.

5 REQUIREMENTS FOR INITIAL CERTIFICATION

5.1 The process of application, initial assessment and product sampling shall be in line with the related provisions in the general rule and the standard specifications.

5.2 The factory shall have a laboratory with the following testing equipment as a minimum:

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

5.3 Bar Marking Requirements

The manufacturer of reinforcing steel bars and coils shall submit to Dubai Central Laboratory Department – Certification And Quality Control Of Products Section – (DCLD-CQPS) a unique bar marking requirements of their products for approval. The approved mark shall be applied to the products covered by the certification. Product Marking shall be as per the Rules on the Markings and Tags of Steel Bars, DM-DCLD-RD-DP21- 2091 (IC). The bars shall be rolled from properly identified heats of mold-cast or strand-cast steel. The steel shall be made by any commercially accepted process what do we mean by commercially accepted process.

5.4 Product Evaluation and testing

5.4.1 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.

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

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

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

5.4.2.3 Chemical composition shall be as per Table 4

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

5.4.2.4 Carbon Equivalent shall be as per Table 5

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

- 5.4.2.5 Mechanical Tests to include Tensile, elongation at break, Yield strength, Elongation at fracture shall be in accordance with Table 7
- 5.4.2.6 Rebend shall show no sign of fracture or irregular bending deformation when subjected to Annex E.1.6
- 5.4.2.7 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-CQPS, if available.
- 5.4.2.8 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-CQPS, if available. It shall show that reinforcing bars, coils and decoiled products shall endure 5 x 10 to the 6th power cycles of stress.

5.4.3 The results of testing must meet the requirements as per the standard specification.

6 GRANTING OF THE DCLD CERTIFICATION

- 6.1 The DCLD product conformity certificate and the authorization to use the DCLD conformity mark shall be granted upon conformance with all related provisions in the general rule.
- 6.2 Fees shall be as per DM-DCLD-RD-DP21-2092 (IC) and other relevant provisions in the general rule.
- 6.3 DCLD-CQPS shall carry out surveillance of certified clients based on the approved periodic plans and related provisions in the general rule.
- 6.4 Appeals, disputes and complaints shall be in line with the relevant provisions in the General Rule.

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