



**Specific Rules For Certification of Steel Strand, Uncoated Seven-Wire For Pre-stressed Concrete
(As per ASTM A 416 / A 416M:2010) Through Factory Assessment
Dubai Central Laboratory- Inspection And Certification Section**

Doc. Ref :RD-DP21-2131 (IC)
Issue Date :01/08/2010

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Issue Date	Rev. No.	Summary Of Amendments
05-07-2006	0	First draft for comments
31-01-2007	1	Issue for use
19-11-2007	2	- Amendment of Section 8.1.2.1 to remove Dimensions and to add Diameter and Difference between center wire diameter and diameter of any outer wires. - Amendment of Section 8.1.2.2 to remove Dimensions and to add Diameter and Difference between center wire diameter and diameter of any outer wires. - Amendment of Section 8.1.2.2 to remove Relaxation Properties. - Amendment of Section 9.1 to modify the validity of the license to one year - Amendment of Section 8.1.2.2 to remove the requirement of Workmanship, Finish & Appearance from the independent testing plan.
28-02-2008	3	
12-07-2009	4	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).
01-08-2010	5	Amended as per new documentation structure and updated as per current version of the standard.

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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 System 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 with those already mentioned in the "General Rules for DM Third Party Product Certification Through Factory Assessment", RD-DP21-2001 (IC).

1.2 SCOPE

This specific rule applies to low-relaxation and stress-relieved seven-wire, uncoated steel strand for use in pre-tensioned and post-tensioned pre-stressed concrete construction.

1.3 PRODUCT IDENTIFICATION AND APPLICABLE STANDARD/NORMATIVE REFERENCE

- 1.3.1 Product name: Steel Strand, Uncoated Seven-Wire for Pre-stressed Concrete
- 1.3.2 Applicable Standard/Normative Reference: ASTM A 416 / A 416M: 2010 - Standard Specification for Steel Strand, Uncoated Seven-Wire for Pre-stressed Concrete.
- 1.3.3 Additional References:
- 1.3.3.1 ISO 9001:2008, Quality Management System – Requirements
- 1.3.3.2 ISO 19011:2002, Guidelines for Quality and Environmental Management System Auditing

1.4 DEFINITION OF TERMS

In addition to the definitions given in ASTM A 416 / A 416M: 2010 and RD-DP21-2001(IC) the following shall also apply:

- 1.4.1 Independent Testing Laboratory - Dubai Central Laboratory (DCL) or any testing laboratory recognized by the DM Certification Body.
- 1.4.2 Independent Test – test performed or conducted by an Independent Testing Laboratory
- 1.4.3 Standard Specification (SS) – ASTM A 416 / A 416M: 2010 - Standard Specification for Steel Strand, Uncoated Seven-Wire for Pre-stressed Concrete.
- 1.4.4 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.
- 1.4.5 QMS - Quality Management System aligned with the requirements of ISO 9001 Standard

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2. REQUIREMENTS FOR CERTIFICATION

2.1 APPLICATION

2.1.1 Manufacturer/producer of steel strand, uncoated seven-wire for pre-stressed concrete shall apply to Dubai Central Laboratory Department through Inspection and Certification Section for the License to use The DCL Conformity Mark.

2.1.2 Application form shall be filled-up by the applicant-company and submitted to DCLD together with the following documents

- a. Trade License
- b. Complete product description and specifications
- c. Brief Description of Manufacturing Process
- d. Copy of the Quality Manual (Controlled Copy)
- e. Vicinity Map and Factory Layout
- f. Valid Certification to ISO 9001 (If available)
- g. List of personnel and their designation

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

Manufacturer of steel strand, uncoated seven-wire for pre-stressed concrete shall have a Quality Management System that is aligned to the requirements of ISO 9001 standard.

NOTE: Certification to ISO 9001 is not a mandatory requirement.

2.2.2 Laboratory

Manufacturer of steel strand, uncoated seven-wire for pre-stressed concrete shall have a quality assurance laboratory to carry out factory production control testing to ensure that the steel strands comply with the requirements of the standard specification.

The laboratory can be part of the factory facilities, or, can be through a documented agreement with an accredited external laboratory. As a minimum requirement, the factory shall have the following minimum test equipment to check product compliance with the requirements of standard specification.

- a. Calipers and other linear measuring test equipments
- b. Weighing Scale (with an accuracy of 100 grams)
- c. Tensile Test Equipment

2.3 INITIAL FACTORY AUDIT

2.3.1 DCL duly authorized representative shall conduct an audit of the factory quality management system to verify its compliance with the requirements of ISO 9001.

NOTE: An independent certification to ISO 9001 issued by a QMS certification body recognized by DM may be considered as having satisfied this requirement; however, the DM Certification Body reserves the right to carry out verification audit to confirm that the factory is in compliance with the QMS requirements.

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2.3.2 Verification audit shall be conducted by designated audit team based on ISO 19011 – Guidelines for Quality and Environment Management System Auditing.

2.4 PRODUCT EVALUATION

2.4.1 Sampling Testing

2.4.1.1 Sampling and number of tests shall comply with requirements specified in section 9 and 10 respectively of the standard specification.

2.4.1.2 Three sets of sample per product per type shall be subjected to testing; the first set, if applicable, will be tested in the plant witnessed by a duly authorized DCL representative, the second set will be sent to independent testing laboratory. The third set will be kept by the manufacturer as reference.

2.4.1.3 Test sample(s) for independent test shall be identified and signed in the presence of DCL representative and shall be submitted to an independent testing laboratory by the DCL representative.

2.4.2 Product Evaluation

2.4.2.1 Materials

2.4.2.1.1 The base metal shall be carbon steel and shall be thermally treated.

2.4.2.1.2. The wire from which the strand is to be fabricated shall be round and have a dry-drawn finish.

2.4.2.2 Mechanical Properties

2.4.2.2.1 Breaking Strength of the finished strand shall conform to the requirements prescribed in Table 1 of the standard specification.

2.4.2.2.2 Yield Strength shall comply with the requirements specify in section 6.3 of the standard specification.

2.4.2.2.3 Elongation shall comply with the requirements specified in section 6.4 of the standard specification.

2.4.2.2.4 Relaxation properties shall comply with the requirements specified in section 6.5 of the standard specification.

2.4.2.3 Dimensions and permissible variations shall comply with the requirements specified in section 7 of the standard specification.

2.4.2.4 Workmanship Finish and appearance shall comply with the requirements specified in section 8 of the standard specification.

2.4.2.5 Independent test shall only be conducted if the result of the in-plant test shows satisfactory

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result.

- 2.4.2.6 If the result of the test conducted by the independent testing laboratory shows non-conformance to the specified requirements, the provision for rejection specified in the standard shall apply. The retest shall be carried out on the reference sample kept by the manufacturer or on new samples collected by DM Certification Body , on which full testing shall be carried out, if necessary.
- 2.4.2.7 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.
- 2.4.2.8 Only after re-assessment and subsequent product compliance shall the manufacturer be allowed to use the DCL Conformity Mark on his product.

3. GRANTING OF THE DCL LICENSE

3.1 CONDITIONS FOR GRANTING THE DCL LICENSE

- 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 license to use the DCL Conformity Mark shall be issued to the manufacturer for the type(s) and size of the product tested.
- 3.1.2 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 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.
- 3.1.3 Factory Production Control System (Internal Product Quality Assurance Plan)

The factory shall prepare and submit to DM Certification Body for approval of an internal product quality assurance plan of the following properties:

- 3.1.3.1 Workmanship, finish and appearance
3.1.3.2 Diameter
3.1.3.3 Difference between center wire diameter and diameter of any outer wire
3.1.3.4 Breaking Strength
3.1.3.5 Yield Strength
3.1.3.6 Elongation
3.1.3.7 Relaxation Properties

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

3.1.4 Independent Testing Plan

The factory shall agree to an independent testing plan to be carried out on samples which are collected

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in accordance with RD-DP21-2096 (IC) – Surveillance of Licensed Establishments under the Factory Assessment Scheme, and implemented by the DM Certification Body. The cost of testing under the independent testing plan shall be borne by the factory.

3.2 ISSUANCE OF DCL LICENSE

If the conditions mentioned in clause 3.1 above have been complied, the manufacturer of steel strand, uncoated seven-wire for pre-stressed concrete shall be issued a DCL Certification License and a Scope of Certification that covers the type(s) and size of the products that are certified.

3.3 RESPONSIBILITIES OF THE LICENSEE

3.3.1 Every licensee shall ensure that his product, for which a license 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 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.

3.3.3 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 quality management system.

3.3.4 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.

3.3.5 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.

3.3.6 Any dispute that may arise in connection with the Terms and Conditions of the DCL Mark shall be settled in accordance with RD-IC-0005 Appeals, Disputes, and Complaints Procedure.

3.3.7 The licensee 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, RD-DP21-2098 (IC)

3.4.2 The licensee shall submit samples of label/tag showing the DCL Conformity Mark, for approval by the DM Certification Body.

3.4.3 The license to use the DCL Certification Mark is non-transferable.

4. SURVEILLANCE

4.1 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.

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4.2 The surveillance shall be in accordance with the Independent Testing Plan (clause 3.1.4) that has been agreed between the DCLD and the factory.

5. FEE SCHEDULE

5.1 The licensee shall pay the applicable fees and charges related to the granting of the license to use the DCL Conformity Mark based on the DCL Official Fee Structure, RD-DP21-2097 (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

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