

 GOVERNMENT OF DUBAI	<b>Organization/Unit:</b> إدارة مختبر دبي المركزي Dubai Central Laboratory Department	الوحدة التنظيمية:	 بلدية دبي DUBAI MUNICIPALITY
	<b>Document Title:</b> Specific Rules for FA Certification of High Tensile Steel Wire Strand for Pre-stressing of concrete as per BS 5896: 1980 Amd 1	عنوان الوثيقة:	
	<b>Doc Ref.</b> DM-DCLD-RD-DP21-2132 (IC)	رقم الوثيقة :	

Issue Date	Rev. No.	Summary Of Amendments
20-08-2006	0	First draft for comments
31/01/2007	1	Issue for use.
19/11/2007	2	<ul style="list-style-type: none"> <li>- Amendment of Document title.</li> <li>- Amendment of Section 7.1.3 to modify the clause no. to 23.3</li> <li>- Amendment of Section 7.2.3 to include Constriction at Break and to remove the Reverse Bend.</li> <li>- Amendment of Section 8.1.2.1 to add the Relaxation Properties.</li> <li>- Amendment of Section 8.1.2.2 for more detailed and specific properties according to Table 6 of the standard specification, and to remove Dimensions, Reverse Bend, Tensile Property.</li> <li>- Amendment of Section 8.1.2.2, to remove Relaxation Properties.</li> <li>- Amendment of Section 9.1 to modify the validity of the license to one year</li> </ul>
12-07-2009	3	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).
30/01/2011	4	Updated in accordance with AMD 1 of the standard Spec's.
06-03-2019	5	Updated as per new DM template and new DM logo

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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 DM-DCLD-RD-DP21- 2001 (IC).

## 2. SCOPE

This specific rule specifies requirements for high tensile steel wire strand that has been given a stress relieving heat treatment to produce either of two classes of relaxation. The strand may be:

- seven-wire standard strand
- seven-wire super strand
- seven-wire drawn strand

## 3. PRODUCT IDENTIFICATION AND APPLICABLE STANDARD/NORMATIVE REFERENCE

- 3.1 Product Name: High Tensile Steel Strand for the Prestressing of Concrete.
- 3.2 Applicable standard/Normative reference: **BS 5896:1980 AMD No. 1** Specification for high tensile steel wire and strand for the prestressing of concrete
- 3.3 Additional References:
- ISO 9001 - Quality Management System – Requirements
  - ISO 19011 - Guidelines for Quality and Environmental Management System Auditing.

## 4. DEFINITION OF TERMS

In addition to the definitions given in **BS 5896:1980 AMD No. 1, DM-DCLD-RD-DP21-2001 (IC)** the following shall also 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 (SS) – **BS 5896:1980 AMD No. 1** Specification for high tensile steel wire and strand for the prestressing of concrete.
- 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 Standard

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## 5. APPLICATION

- 5.1 Manufacturer/producer of steel strand, uncoated seven-wire for prestressed concrete shall apply to Dubai Central Laboratory Department 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
  - 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 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.
- 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 – Guidelines for Quality and Environment Management System Auditing.
- 6.4 Minimum Required Test Equipments

The manufacturer of seven-wire, uncoated steel strand for prestressed concrete 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 Tensile Test Equipment.

## 7. REQUIREMENTS FOR INITIAL TESTING OF THE PRODUCT

### 7.1 Sampling

- 7.1.1 The sample size and frequency of each test shall be in accordance with section 23 of the standard specification.
- 7.1.2 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

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reference for future use. Independent test shall only be conducted if the result of the in-plant test shows satisfactory results.

- 7.1.3 Test sample(s) for independent test shall be packed/sealed and signed in the presence of DCL representative and shall be submitted to an Independent Testing Laboratory by the DCL representative.

## 7.2 Product Characteristic and Test Requirements

- 7.2.1 Dimension (Diameter) – shall be measured in accordance to section 24.2 of the standard specification and shall be within the limits given in Table 6.
- 7.2.2 Tensile Properties – the tensile property of the strand shall be measured in accordance with the test methods stated in the standard specifications.
- 7.2.3 Constriction at break.
- 7.2.4 Relaxation – shall be carried out as per section A.4 of the standard specifications.
- 7.2.5 Breaking Load and Elongation at Maximum Load –shall be carried out as per section A.5 of the standard specification.

- 7.3 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 section 23.4 of 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.
- 7.4 If the re-test passed, the initial product assessment is considered conforming to product specification. If not , the manufacturer will be advised to take corrective action.
- 7.5 Only after reassessment and subsequent product compliance shall the manufacturer be allowed to use the DCL Conformity Mark.

## 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)/brand(s) 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 DM Certification Body for approval of an internal product quality assurance plan of the following properties (which shall be in accordance with

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clause 23 of the standard specification):

- a- Geometrical Properties
- b- Wire Condition
- c- Breaking Load or Tensile Strength
- d- Proof Load or Proof Stress
- e. Elongation at Maximum Load
- f. Load-Extension Diagram
- g. Ductility (constriction)
- h. 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.

#### 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 DM-DCLD-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.
- 8.2.5 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 cancellation of the license against a licensee.
- 8.2.6 Any dispute that may arise in connection with the terms and conditions of the certification scheme shall be settled in accordance with the General Rule for DM Third Party Product Certification System through Factory Assessment.

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## 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 Terms and Conditions for the Use of the DCL Mark of Conformity, DM-DCLD-RD-DP21-2098 (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 DCL Mark based on the DCL Official Fee Structure, DM-DCLD-RD-DP21-2097 (IC).
- 11.2 The fees for this certification scheme shall include but not limited to the following:-
- 11.2.1 Application Fee
  - 11.2.2 Initial Assessment Fee
  - 11.2.3 Certification Fee
  - 11.2.4 Surveillance Fee
  - 11.2.5 Annual Renewal Fee
  - 11.2.6 Testing Fee
  - 11.2.7 Marking Fee

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