

 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 High Tensile Steel Wire Strand for Pre-stressing of concrete as per BS 5896: 2012	عنوان الوثيقة:	
	Doc Ref. DM-DCLD-RD-DP21-2200 (IC)	رقم الوثيقة:	

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08/03/2017	0	First draft for comments
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06/03/2019	2	Updated as per new DM template and new DM logo

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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”, DM-DCLD-RD-DP21-2001 (IC).

1.2 SCOPE

This specific rule applies to uncoated high tensile strength steel products for the use in prestressing of concrete and are also used for other tensile applications in the construction field, such as:

Plain wire	7-wire strand
Indented Wire (T1 & T2)	7-wire indented strand
	7-wire compacted strand

1.3 PRODUCT IDENTIFICATION AND APPLICABLE STANDARD/NORMATIVE REFERENCE

1.3.1 Product name: High Tensile Steel Wire & Strand for the Pre stressing of Concrete.

1.3.2 Applicable Standard/Normative Reference: BS 5896:2012 High tensile steel wire and strand for the pre stressing of concrete- Specification

1.3.3 Additional References:

1.3.3.1 ISO 9001 - Quality Management System – Requirements

1.3.3.2 ISO 19011 - Guidelines for Quality and Environmental Management System Auditing

1.4 DEFINITION OF TERMS

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In addition to the definitions given in BS 5896:2012, 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) – BS 5896:2012 High tensile steel wire and strand for the pre stressing of concrete - Specification
- 1.4.4 QMS - Quality Management System aligned with the requirements of ISO 9001 Standard

2. REQUIREMENTS FOR CERTIFICATION

2.1 APPLICATION

- 2.1.1 Manufacturers of High tensile steel wire and strand for the prestressing of concrete shall apply to Dubai Central Laboratory for the Certification and authorization to use the DCL Conformity Mark.
- 2.1.2 Application form (F-IC-2001) shall be filled-up by the applicant-company and submitted to DCLD together with the following documents
 - a. Industrial/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
 - h. Total number of effective personnel involved in manufacture of the product (technical, managerial and support personnel)
 - i. List of available testing equipment and tests conducted internally
 - j. Others

2.2 FACTORY OPERATION

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2.2.1 Quality Management System

Manufacturers of High tensile steel wire and strand for the prestressing of 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

Manufacturers of High tensile steel wire and strand for the prestressing of concrete shall have a quality assurance laboratory to carry out factory production control testing to ensure that the produced high tensile steel wire and strand 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 external accredited laboratory. As a minimum requirement, the laboratory shall have the following minimum testing facilities to check product compliance with the requirements of standard specification.

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

2.3 INITIAL FACTORY AUDIT

2.3.1 DCL duly authorized representatives shall conduct an audit of the factory's 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.

2.3.2 The audit shall be conducted by designated audit team in accordance with ISO 19011 – Guidelines for Quality and Environment Management System Auditing.

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2.4 PRODUCT EVALUATION

2.4.1 Sampling & Testing

2.4.1.1 Three sets of samples per size per product family shall be taken randomly. The first set shall be tested in the plant supervised by a duly authorized DCLD-PCAS representative(s), the second set will be sent to independent testing laboratory, and the third set will be kept by the manufacturer as reference samples for future use.

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

2.4.1.3 Number of Samples for testing shall be at least 10 pieces by 1.2 meter length per size per product family.

2.4.2 Product Evaluation

2.4.2.1 The product shall conform to the requirements as specified in clauses 7.2 and 7.3, tables 7, 8, 9, and 10 of the standard specification for wires.

2.4.2.2 The product shall conform to the requirements as specified in clauses 7.2 and 7.3, tables 11, 12, and 13 of the standard specification for strands.

2.4.2.3 Tests shall be carried out in accordance with BS EN ISO 15630-3 and shall have values as follow;

2.4.2.3.1 Geometrical Properties for wires shall be as per clause 11.3.2, and tables 7, 8 & 9 of the standard specification for wires.

2.4.2.3.2 Mechanical Properties for wires shall be as per clause 7.2.2, and tables 9 & 10 of the standard specification for wires.

2.4.2.3.3 Special Properties for wires (isothermal stress relaxation, and stress corrosion resistance) shall be as per clause 7.3, and table 10 of the standard specification for wires.

2.4.2.3.4 Wires designation shall be as per clause 11.1 of the standard specification for wires.

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2.4.2.2.5 Geometrical Properties for strands shall be as per clauses 12.2.1, 12.2.2, 12.2.3, 12.3.3, and table 11 of the standard specification for strands.

2.4.2.3.6 Mechanical Properties for strands shall be as per clause 7.2.2 and tables 12 & 13 of the standard specification for strands.

2.4.2.3.7 Special Properties for strands (isothermal stress relaxation, and stress corrosion resistance) shall be as per clause 7.3, and table 13 of the standard specification for strands.

2.4.2.3.8 Strands designation shall be as per clause 12.1 of the standard specification for strands.

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

2.4.2.5 If the results of the test conducted by the independent testing laboratory shows non- conformance, the retest shall be carried out on the reference sample kept by the manufacturer or on new samples collected by DCL, on which full testing shall be carried out, if necessary.

2.4.2.6 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.

3. GRANTING OF THE DCL CERTIFICATION

3.1 CONDITIONS FOR GRANTING THE DCL CERTIFICATION

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 authorization to use the DCL Conformity Mark shall be issued to the manufacturer for the sizes per product family tested.

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

The factory 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) quantity of samples; (4) tests to be carried out; (5) results acceptance criteria; and (6) responsible person to carry out the activity. The plan shall cover all the inspections carried throughout the whole

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manufacturing process; i.e. (raw materials – production lines- finished product testing and evaluation as per standard specifications – final packing).

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.

Frequency of sampling and testing for wires and strands shall be in accordance with tables 4 & 5 of the standard specification.

3.1.3 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 Certified Establishments under the Factory Assessment Scheme, and implemented by the DM Certification Body. The cost of testing under the independent testing plan shall be shouldered by the factory.

3.2 ISSUANCE OF DCL CERTIFICATE OF CONFORMITY

If the conditions mentioned in clause 3.1 above have been complied, the manufacturer of High tensile steel wire and strand for the prestressing of concrete shall be granted a DCL Certificate of Conformity and a Scope of Certification that covers the products that are certified.

3.3 RESPONSIBILITIES OF THE CERTIFIED CLIENT

3.3.1 The certified client shall ensure that his product, for which a Certificate of Conformity has been issued, conforms at all times to Terms and Conditions mentioned in the Application Form (F-IC-2001), the requirements of the General Rules and Specific Rules, and regulations and legislation, whenever applicable, and shall maintain to the satisfaction of DCL, a system of quality control including inspection and testing.

3.3.2 The certified client 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 certified client shall inform the DM Certification Body in writing of any changes of management, transfer of

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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 cancellation of the Certificate of Conformity against a certified client.

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 IMS-RD-08 Appeals, Disputes, and Complaints Procedure.

3.3.7 The certified 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, IMS-RD-13.

3.4.2 The certified client 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/packaging.

3.4.3 The authorization to use the DCL Conformity 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 Certified Clients under the Factory Assessment Scheme.

4.2 The surveillance shall be in accordance with the Independent Testing Plan (clause 3.1.3) that has been agreed between the DCLD and the factory.

5. CERTIFICATION FEES

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- 5.1 The certified client shall pay the applicable fees and charges related to the granting of the Certificate of Conformity to use the DCL Mark based on the DCL Official Fee Structure, RD-DP21-2097 (IC).

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