

 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: 2012	عنوان الوثيقة:	
	<b>Doc Ref.</b> DM-DCLD-RD-DP21-2200 (IC)	رقم الوثيقة :	

Issue Date	Rev. No.	Summary Of Amendments
08/03/2017	0	First draft for comments
30/04/2017	0	Final draft for comments
05/07/2017	1	Issue for use
06/03/2019	2	Updated as per new DM template and new DM logo
06/09/2020	3	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	4	Removal of the documents in clause 2.1.2, in addition to further amendment in the provision for accepting valid test reports ( clause 2.4.2.4 ), 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.

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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 with 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 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 Auditing Management System

### 1.4 DEFINITION OF TERMS

In addition to the definitions given in BS 5896:2012, DM-DCLD-RD-DP21-2001 (IC), the following shall also apply:

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- 1.4.1 Independent Testing Laboratory - Dubai Central Laboratory (DCL) or any testing laboratory recognized by the DCLD-PCAS.
- 1.4.2 Independent Test – test performed or conducted by the recognized 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
- 1.4.5 Factory Production Control and 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.
- 1.4.6 Client – Manufacturer of Cold reduced steel wire for the reinforcement of concrete
- 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 forms shall be submitted 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 client's QMS shall be in line with its requirements.

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### 2.2.2 Laboratory

The client 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 requirement:

- 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 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, the 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.*

- 2.3.2 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

- 2.4.1.1 Sampling for initial testing shall be taken randomly by the authorized auditor from the products to be

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certified (sizes to and quantities to be determined) either from production lines or the factory warehouse.

2.4.1.2 Three sets of sample per product per type shall be subjected to testing; the first set, where possible, will be tested in the plant witnessed 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 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 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 and testing

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.

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

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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 Where applicable, Independent test shall only be conducted if the result of the applicable in-plant test shows satisfactory results. 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

2.4.2.5 If the result of the test conducted by the DCLD-PCAS approved independent testing laboratory shows non-conformance to the specified requirements, the applicant may request for a retest. 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.

2.4.2.6 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.

2.4.2.7 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.

### 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)/model(s)/brand(s) 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 / mechanism 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 cover all inspections carried out thru out the whole 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 shall be in accordance with table 5 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 Certified Clients under the Factory Assessment Scheme, and implemented by DCLD-PCAS and will be authorized to use the DCL Conformity Mark on the certified products.

## 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 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 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 changes 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.
- 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/packaging.
- 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 authorized auditor 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 DCL Official Fee Structure, DM-DCLD-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
  - 5.2.8 Outsource Activity Fee (whenever applicable)

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