

 GOVERNMENT OF DUBAI	Organization/Unit:	إدارة مختبر دبي المركزي Dubai Central Laboratory Department	الوحدة التنظيمية:	 بلدية دبي DUBAI MUNICIPALITY
	Document Title:	Specific Rules for Certification of Reinforcement Couplers for Mechanical Splices of Bars as per ISO 15835-1: 2018	عنوان الوثيقة:	
	Doc Ref.	DM-DCLD-RD-DP21-2189 (IC)	رقم الوثيقة:	

Issue Date	Rev. No.	Summary Of Amendments
13-09-2015	0	First draft for comments
15-08-2016	0	Final draft
21-11-2016	1	Issue for use
01-05-2018	2	Include provisions for product marking/labeling and documentation requirements and revision in the internal quality plan.
02-04-2019	3	Revise the requirements based on the updated standard ISO 15835-1: 2018
01-07-2020	4	Revised for the update in the fee structure. 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.
26/09/2021	5	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.

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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 manufacturer 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 only to manufacturer of reinforcement couplers for mechanical splices of bars products, which are to be used for mechanical splices in reinforced concrete structures under predominantly static loads and additional requirements for couplers to be used in structures subject to high cycle elastic fatigue loading and/or to low cycle elastic-plastic reverse loading and intended to be applicable in relation to the various reinforced concrete design standards as well as in relation to the various standards for steel reinforcing bars.

1.3 PRODUCT IDENTIFICATION AND APPLICABLE STANDARD/NORMATIVE REFERENCE

- 1.3.1 Product name: Reinforcement steel coupler
- 1.3.2 Applicable Standard/Normative Reference: ISO 15835-Part 1-2018 Steels for the reinforcement concrete –Reinforcement couplers for mechanical splices of bars - Requirements
- 1.3.3 Additional References:
- 1.3.3.1 ISO 9001:2015, Quality Management System – Requirements
- 1.3.3.2 ISO 19011: Guidelines for Auditing Management Systems
- 1.3.3.3 ISO 15835-Part 2-2018 Steels for the reinforcement concrete –Reinforcement couplers for mechanical splices of bars – Test methods
- 1.3.3.4 ISO 15835-Part 3-2018 Steels for the reinforcement concrete –Reinforcement couplers for mechanical splices of bars – Conformity assessment scheme

1.4 DEFINITION OF TERMS

In addition to the definitions given in ISO 15835-1 and DM-DCLD-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 DCLD-PCAS.
- 1.4.2 Independent Test – test performed or conducted by an Independent Testing Laboratory or any testing laboratory recognized by (DCLD-PCAS).

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- 1.4.3 Product Quality Assurance Plan – a document being agreed upon both by the manufacturer and the certification body being used to ensure continuous compliance of the certified product
- 1.4.4 QMS - Quality Management System aligned with the requirements of ISO 9001 Standard
- 1.4.5 Manufacturer - is hereby defined as the Applicant for certification and is the brand owner of the coupler. The manufacturer may have its own factory [1.4.6] or may outsource the production to an external factory under a manufacturing agreement.
- 1.4.6 Factory – is the manufacturing facility where the coupler is produced. It can be part of the manufacturer or can be an independent external organization.
- 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 Manufacturer Of reinforcement steel coupler shall apply to Dubai Central Laboratory Department for the Certification and authorization to use the DCL Conformity Mark.

2.1.2 Application form shall be submitted by client to DCLD-PCAS.

2.2 FACTORY OPERATION

2.2.1 Quality Management System

2.2.1.1 Manufacturer and the factory of reinforcement steel coupler products, including the production facilities, shall have a Quality Management System that is aligned to the requirements of ISO 9001 standard.

NOTE: Having a certificate as per ISO 9001 is not a mandatory requirement; however the structure of the manufacturer's QMS shall be in line with its requirements.

2.2.2 Laboratory for Factory Production Control Testing

2.2.2.1 Manufacturer and factory of reinforcement steel coupler shall have a quality assurance laboratory to carry out factory production control testing to ensure that the raw materials and finish product (coupler) are comply with the requirements of the standard specification.

2.2.2.2 The laboratory can be part of the factory production facilities, or, can be through a documented agreement with an external laboratory. As a minimum requirement, the laboratory shall have the following testing facility to check the following properties:

- tensile machine
- linear measurements devices

(Note: in addition to tensile machine, steel bar threading machine should be provided for the purpose of

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threading the bars used for tensile testing)

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, 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.

2.3.3 For the purpose of system certification, requirements of clause 5 of ISO 15835-3 shall apply.

2.4 PRODUCT EVALUATION

2.4.1 Sampling Testing

2.4.1.1 Sample for the initial testing shall be taken randomly by the authorized auditor from the products to be certified. It can be from production lines or from factory's 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 manufacturer as reference.

2.4.1.3 Test sample(s) for independent test shall be identified and signed in the presence of the authorized auditor and shall be submitted to DCLD-PCAS approved independent testing laboratory.

2.4.1.4 Where applicable, Independent test should only be conducted if the result of the in-plant test shows satisfactory result. 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 Company Declaration and Testing

2.4.2.1 The manufacturer shall submit to DCLD-PCAS a declaration of product specification subject for certification. This

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shall include but not limited to:

- Type (technical class) and size of reinforcing bars to be spliced, with reference to a standard or specification.
- Category of the coupler (As per table 2 – ISO15835-1:2018)
- Strength and ductility under static forces
- Slip under static forces
- Properties under high cycle fatigue loading in the elastic range (for category {F} only, whether the two million cycles criteria or the S-N diagram is required)
- Identification and marking;
- Installation instructions.
- Design Dimension (Length, internal diameter, external diameter, pitch size and type)
- Type of coupler (parallel thread, tapered thread, pressed, or grouted...etc)
- Standards for steel reinforcing bars needed to be used with coupler.

Optional

- For category S couplers, whether the u20 criteria is required
- For category S coupler (S1 or S2), properties under low cycle reverse loading in the elastic-plastic range

2.4.2.2 Samples drawn for independent test shall meet the requirements as per clause 5 of the Standard Specification as follows:

- Strength and ductility under static forces with reference to section 5.3 of ISO 15835-2
- Slip under static forces with reference to section 5.4 of ISO 15835-2
- Properties under high cycle fatigue loading in the elastic range (for fatigue category {F} designation only) with reference to section 5.5 of ISO 15835-2
- Properties under low cycle reverse loading in the elastic-plastic range. (for Seismic {S1 – or S2} category designation only) with reference to section 5.6 of ISO 15835-2

2.4.2.3 Where appropriate, a comparison shall be made between the manufacturer's routine test results, results of witness testing and the results of testing by the independent testing laboratory.

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

2.4.2.5 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 Table 1 of the ISO 15835-3 standard shall apply. The retest shall be carried out on the reference sample kept by the manufacturer or factory 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 manufacturer will be advised to take corrective action.

2.4.2.7 Only after re-assessment and subsequent product compliance shall the manufacturer be allowed to use the DCL Conformity Mark on his product(s) which found complying with the certification requirements.

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2.4.2.8 Sampling plan for initial assessment / factory surveillance shall be as per Table 1 below.

Table 1 : Sampling Plan for Qualification Testing (Initial Assessment) / Factory Surveillance

	Properties to be checked	Initial Assessment	Factory Surveillance
1	Slip under static forces	Five samples per size for each type	Five samples for one size for one type
2	Strength and ductility under static forces	Five samples per size for each type	Three samples for one size for one type
3	High cycle elastic fatigue loading for category F	Three samples of the largest size for each type	Three samples of one size for one type
4	Low cycle reverse elastic-plastic loading for categories S1 and S2	Three samples per size for each type	Three samples of one size for one type ¹
¹ For low cycle the frequency in testing of the properties should be such that all sizes are tested within a period of 5 years until all sizes and types in the scope have been tested.			

3. GRANTING OF THE DCL CERTIFICATE OF CONFORMITY

3.1 CONDITIONS FOR GRANTING THE DCL CERTIFICATE OF CONFORMITY

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 manufacturer for the type(s) and size of the product covered by the assessment.

3.1.2 The manufacturer and factory shall agree with DCLD-PCAS 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 factory production control plan, and (2) an independent testing plan.

3.1.3 Factory Production Control scheme (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.

3.1.3.1 The plan shall take into consideration the production process, the volume of production, the criticality of the test to be specified. As a minimum, the plan shall comply with Table 2 below.

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Table 2 : Internal Product Quality Assurance Plan

SR	Properties to be checked	Minimum Testing Frequencies
1	Slip under static forces	One specimen /5000 pcs. each size and each type
2	Strength and ductility under static forces	One specimen /2500 pcs. each size and each type
3	Size Length, internal diameter, external diameter , pitch size	One specimen/ 5000 pcs. each size and each type

3.1.4 Independent Testing Plan

3.1.4.1 The manufacturer 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 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 manufacturer.

3.2 ISSUANCE OF DCL CERTIFICATE OF CONFORMITY

3.2.1 If the conditions mentioned in clause 3.1 above have been complied, the manufacturer 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 MANUFACTURER

3.3.1 The manufacturer shall ensure that his product, for which a certificate has been issued, conforms at all times to the requirements of the General Rule and Specific Rules and shall maintain to the satisfaction of DCLD-PCAS, a system of factory production control including inspection and testing.

3.3.2 The manufacturer 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 certification scheme.

3.3.3 The manufacturer shall inform DCLD-PCAS, 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 In case of transfer of factory location, 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 violation of the Terms and Conditions of the certification scheme shall constitute sufficient grounds for suspension, withdrawal and termination of certification in accordance with DM-DCLD-IMS-RD-07.

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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 manufacturer 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 and the below requirements for identification/markings and tag:

3.4.1.1 Product Marking

- The Brand Name "XXX"
- The diameter as " Ø##".
- The letters "DCL"
- Date of manufacture as "ddmmyy"
- The work order running number/batch mark

Example of identification mark is as shown:

GRN Ø32 DCL 150318/12345

3.4.1.2 Tags

3.4.1.2.1 Tags shall be affixed to every package of steel couplers.

3.4.1.2.2 Tags shall contain the following minimum information:

- Manufacturer's name
- Country of origin
- Standard specification number
- Steel grade
- Size (nominal diameter x length)
- Heat number
- DCL Mark
- Brand

3.4.2 The identification and tractability of each coupler shall be as per the requirement of ISO 15835-1 clause 5.7 and the above clauses 3.4.1

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3.4.3 The manufacture 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/product container.

3.4.4 The Certificate of Conformity and the authorization to use the DCL Certification Mark is non-transferable.

3.5 DOCUMENTATION OF CONFORMITY

3.5.1 The manufacturer shall confirm to the requirement of ISO 15835-3 clause 5.2 when supplying the product to the customer.

3.6 INSTALLATION INSTRUCTIONS

3.6.1 The manufacturer shall provide clear written installation instructions as per ISO 15835-3 clause 5.8.

4. SURVEILLANCE

4.1 DCLD-PCAS or their approved CAB 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 Establishments under the Factory Assessment Scheme.

4.2 Testing as part of surveillance shall be in accordance with the Independent Testing Plan (clause 3.1.4) that has been agreed between the DCLD and the factory. Sampling plan as per Table 1 shall be followed.

5. FEE SCHEDULE

5.1 The manufacturer shall pay the applicable fees and charges related to the granting of the certificate of conformity to use the DCL Conformity Mark based on the DCL Official Fee Structure, DM-DCLD-RD-DP21-2074 (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 CABs Fees as applicable

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