

 GOVERNMENT OF DUBAI	Organization/Unit: إدارة مختبر دبي المركزي Dubai Central Laboratory Department	الوحدة التنظيمية: 	 بلدية دبي Dubai Municipality
	Document Title: 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: 	

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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.
04/10/2022	6	Changing section name as per the new organizational structure, and replace HOU by CQPSM (Section's Manager), also addition of surveillance in the clause 2.4.1.4, and addition of "and/or the approved manufacturer code as referred into the scope of certification of the certified client/applicant" in the clause 3.4.1.2.
27/03/2023	7	Full re-structuring and transfer of common provisions to the general rule. Clauses are re-numbered and document title has been revised accordingly. Use of New DM Logo

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1. INTRODUCTION

- 1.1 This document prescribes the specific rule for certification of the product(s) as identified herein, in accordance with the requirements of DM Third Party Product Certification Scheme Through Factory Assessment, taking into consideration the applicable normative references and standard specification, in addition to the requirements for conformity evaluation, as stated below.
- 1.2 The applicant/client shall comply with this specific rule, and to all provisions under the “**General Rule for DM Third Party Product Certification Scheme Through Factory Assessment**”**DM-DCLD-RD-DP21-2001 (IC)**.
- 1.3 This specific rule **is an integral part of the general rule** and both shall always be read together.

2. SCOPE

- 2.1 This specific rule specifies the requirements of the 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.
- 2.2 This specific rule does not -by itself- permit the use of the below product in the construction sites. However, it does provide the necessary general conformity assessment criteria, which are required for the evaluation and issuance of the certification and the authorization of the use of the DCLD Conformity Mark. Other relevant requirements issued by the regulatory bodies if any; shall always be fulfilled.

3 PRODUCT IDENTIFICATION AND APPLICABLE STANDARD/NORMATIVE REFERENCE

- 3.1 Product name: Reinforcement Steel Coupler
- 3.2 Applicable standard/Normative reference: ISO 15835-Part 1-2018 Steels for the reinforcement concrete –Reinforcement couplers for mechanical splices of bars - Requirements
- 3.3 Additional reference:
ISO 9001 - Quality Management System – Requirements
ISO 19011 - Guidelines for Auditing Management System.

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ISO 15835-Part 2-2018 Steels for the reinforcement concrete –Reinforcement couplers for mechanical splices of bars – Test methods

ISO 15835-Part 3-2018 Steels for the reinforcement concrete –Reinforcement couplers for mechanical splices of bars – Conformity assessment scheme

4 DEFINITION OF TERMS

- 4.1 In addition to the definitions given in ISO 15835-1:2018 and DM-DCLD-RD-DP21-2001 (IC), the following shall also apply:
- 4.1.1 Standard Specification – ISO 15835-Part 1-2018 Steels for the reinforcement concrete –Reinforcement couplers for mechanical splices of bars - Requirements

5 REQUIREMENTS FOR INITIAL CERTIFICATION

- 5.1 The process of application, initial assessment and product sampling shall be in line with the related provisions in the general rule and the standard specifications.
- 5.2 The factory shall have a laboratory with the following testing equipment as a minimum:
- Tensile machine
 - Linear measurements devices
- (Note: in addition to tensile machine, steel bar threading machine should be provided for the purpose of threading the bars used for tensile testing)
- 5.3 For the purpose of system certification, requirements of clause 5 of ISO 15835-3 shall apply.
- 5.4 Product Evaluation and testing
- 5.4.1 Company Declaration and Testing
- 5.4.1.1 The manufacturer shall submit to DCLD-CQPS a declaration of product specification subject for certification. This 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)

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- i. Type of coupler (parallel thread, tapered thread, pressed, or grouted...etc)
- j. Standards for steel reinforcing bars needed to be used with coupler.

Optional

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

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

- a. Strength and ductility under static forces with reference to section 5.3 of ISO 15835-2
- b. Slip under static forces with reference to section 5.4 of ISO 15835-2
- c. 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
- d. 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

5.4.1.3 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

SR	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.			

5.5 Factory Production Control scheme (Internal Product Quality Assurance Plan)

5.5.1 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.

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5.5.2 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.

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

5.6 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:

<p style="text-align: center;">GRN Ø32</p> <p style="text-align: center;">DCL 150318/12345</p>

5.7 Tags

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

5.7.2 Tags shall contain the following minimum information:

- Manufacturer's name and/or the approved manufacturer code as referred into the scope of certification of the certified client/applicant
- Country of origin
- Standard specification number
- Steel grade
- Size (nominal diameter x length)
- Heat number
- DCL Mark
- Brand

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- 5.7.3 The identification and tractability of each coupler shall be as per the requirement of ISO 15835-1 clause 5.7 and DCL Conformity Mark requirements.
- 5.7.4 The manufacture shall submit a product-marking proposal for approval by DCLD-CQPS. The proposal shall include drawings and/or diagrams showing the location and size of the marking for each size of the product/product container.
- 5.8 Documentation Of Conformity
- 5.8.1 The manufacturer shall confirm to the requirement of ISO 15835-3 clause 5.2 when supplying the product to the customer.
- 5.9 Installation Instructions
- 5.9.1 The manufacturer shall provide clear written installation instructions as per ISO 15835-3 clause 5.8.

6 GRANTING OF THE DCLD CERTIFICATION

- 6.1 The DCLD product conformity certificate and the authorization to use the DCLD conformity mark shall be granted upon conformance with all related provisions in the general rule.
- 6.2 Fees shall be as per DM-DCLD-RD-DP21-2074 (IC) and other relevant provisions in the general rule.
- 6.3 DCLD-CQPS shall carry out surveillance of certified clients based on the approved periodic plans and related provisions in the general rule.
- 6.4 Appeals, disputes and complaints shall be in line with the relevant provisions in the General Rule.

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