INTERNATIONAL STANDARD

ISO 15835-1

Second edition
2018-10

Steels for the reinforcement of concrete — Reinforcement couplers for mechanical splices of bars —

Part 1: Requirements

Aciers pour l'armature du béton — Coupleurs d'armature destinés aux raboutages mécaniques de barres —

Partie 1: Exigences

Reference number
ISO 15835-1:2018(E)

© ISO 2018



COPYRIGHT PROTECTED DOCUMENT

© ISO 2018

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Fax: +41 22 749 09 47
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

 © ISO 2018 – All rights reserved

Contents

Page

Foreword ... **iv**

1 Scope ... **1**

2 Normative references ... **1**

3 Terms and definitions ... **1**

4 Symbols ... **2**

5 Requirements ... **3**
5.1 General ... 3
5.2 Categories of mechanical splices ... 3
5.3 Strength and ductility under static forces ... 4
5.3.1 General ... 4
5.3.2 Strength ... 4
5.3.3 Ductility ... 4
5.4 Slip under static forces ... 5
5.4.1 Testing requirements ... 5
5.4.2 Slip requirement ... 5
5.5 Properties under high-cycle fatigue loading (optional) ... 6
5.5.1 Testing programme ... 6
5.5.2 Fatigue performance ... 6
5.5.3 *S-N* diagram (optional) ... 7
5.6 Properties under low-cycle reverse loading (optional) ... 7
5.7 Marking and traceability ... 7
5.8 Installation instructions ... 7

Annex A (informative) **Items to be specified** ... **8**

Bibliography ... **9**

© ISO 2018 – All rights reserved

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see www.iso.org/iso/foreword.html.

The committee responsible for this document is ISO/TC 17, *Steel*, Subcommittee SC 16, *Steels for the reinforcement and prestressing of concrete*.

This second edition cancels and replaces the first edition (ISO 15835-1:2009), which has been technically revised with changes made to Clauses 1, 2, 3, 4 and 5, 3.2, 3.5, 5.2, 5.3, 5.5 and 5.6, Table 1, and Annexes C and D. Clause 6 and Annexes A and B have been revised and have been moved out into a new document: ISO 15835-3.

A list of all the parts in the ISO 15835 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

© ISO 2018 – All rights reserved

Steels for the reinforcement of concrete — Reinforcement couplers for mechanical splices of bars —

Part 1: Requirements

1 Scope

This document specifies requirements for couplers for the mechanical splicing of steel reinforcing bars. More onerous requirements can be specified by the customer.

This document is applicable to the continuous production of coupler components. It is intended to be used with adequate control measures for the processing of reinforcing bars, i.e. the production of the mechanical splice.

This document specifies requirements for couplers used for mechanical splices in reinforced concrete structures under predominantly static loads. It specifies additional requirements for couplers used in structures subject to high-cycle elastic fatigue loading and/or low-cycle elastic-plastic reverse loading.

NOTE ISO 15835-3 specifies the quantity of tests.

Compression-only couplers such as end-bearing sleeves are not covered by the ISO 15835 series.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 15630-1, *Steel for the reinforcement and prestressing of concrete — Test methods — Part 1: Reinforcing bars, wire rod and wire*

ISO 15835-2:2018, *Steels for the reinforcement of concrete — Reinforcement couplers for mechanical splices of bars — Part 2: Test methods*

ISO 16020, *Steel for the reinforcement and prestressing of concrete — Vocabulary*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 16020 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

3.1
coupler length
actual length of the coupler including all load-transferring parts, if more than one, and including lock nuts, if any

© ISO 2018 – All rights reserved

3.2
length of mechanical splice
coupler length plus two times the nominal bar diameter at both ends of the coupler

Note 1 to entry: This is a theoretical definition aimed at including the length of bar that could have been affected by the bar-end preparation process.

3.3
mechanical splice
complete assembly of a coupler, including any additional intervening material or other components providing a splice of two reinforcing bars

3.4
coupler
coupling sleeve or threaded coupler for mechanical splicing of reinforcing bars for the purpose of providing transfer of axial tension and/or compression from one bar to the other where

— coupling sleeve is a device fitting over the ends of two reinforcing bars,

— threaded coupler is a threaded device for joining reinforcing bars with matching threads

3.5
slip
relative displacement between the components of a mechanical splice while being loaded to a defined load level

3.6
slip measurement device
ensemble constituted by the extensometer and any system used to fasten it to the mechanical splice

3.7
batch
number of couplers of the same type and diameter, manufactured from the same cast of incoming material, as a discrete unit defined by the manufacturer

3.8
lot
number of couplers of the same type and diameter, of various batches, delivered at the same time to the same purchaser

4 Symbols

Table 1 — Symbols

Symbol	Unit	Designation
A_{gt}	%	Percentage total elongation at maximum tensile force, F_{max}
d	mm	Nominal diameter of the reinforcing bar
F_{max}	kN	Maximum tensile force
N	—	Specified number of load cycles in high cycle fatigue test
$R_{eH,\,spec}$	MPa[a]	Specified characteristic (or nominal) yield strength value of the reinforcing bar
R_{eH}	MPa	Yield strength value of the reference bar
$R_{m,\,spec}$	MPa	Specified (or nominal) tensile strength value of the reinforcing bar
$(R_m/R_{eH})_{spec}$	—	Specified minimum tensile/yield strength ratio of the reinforcing bar
u_{20}	mm	Residual elongation after 20 cycles
[a] 1 MPa = 1 N/mm^2.		

© ISO 2018 – All rights reserved