International Standard

ISO 18954

Steel structures — Structural bolting — Test method to determine parameters of bolt tightening procedures

Structures en acier — Boulonnerie de construction métallique — Méthode d'essai pour déterminer les paramètres des procédures de serrage des boulons

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Foreword

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This document was prepared by Technical Committee ISO/TC 167, *Steel and aluminium structures*.

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.

Introduction

This document has been prepared to provide provisions and guidance in the testing of bolting assemblies for pretensioning for which no tightening parameters exist, e.g. when bolts are pretensioned by turning the head, for pretensioning of stainless steel bolting assemblies, when bolts need to be tightened in tapped holes or when a special lubrication is used. This document gives provisions and guidance on how to qualify those bolting assemblies for pretensioning and on how to determine secure tightening parameters.

Steel structures — Structural bolting — Test method to determine parameters of bolt tightening procedures

1 Scope

This document specifies a test method to determine parameters of bolt tightening procedures for pretensioned bolted connections to be used in structural steelwork.

The methods to establish bolt tightening procedures given in this document are applicable to pretensioned bolted connections for which no approved tightening parameters exist in national or international standards. For example, in cases where bolting assemblies have to be tightened by turning the head instead of the nut, when conditions deviate from a given harmonized standard for pretensioning of bolting assemblies, or when stainless steel bolting assemblies are to be pretensioned. In these cases, tightening parameters as well as tightening procedures can be determined with the use of the Bolt Tightening Qualification Procedure (BTQP) given in this document.

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 898-1, *Mechanical properties of fasteners made of carbon steel and alloy steel — Part 1: Bolts, screws and studs with specified property classes — Coarse thread and fine pitch thread*

ISO 898-2, *Fasteners — Mechanical properties of fasteners made of carbon steel and alloy steel — Part 2: Nuts with specified property classes*

ISO 898-3, *Mechanical properties of fasteners made of carbon steel and alloy steel — Part 3: Flat washers with specified property classes*

ISO 3506-1, *Fasteners — Mechanical properties of corrosion-resistant stainless steel fasteners — Part 1: Bolts, screws and studs with specified grades and property classes*

ISO 3506-2, *Fasteners — Mechanical properties of corrosion-resistant stainless steel fasteners — Part 2: Nuts with specified grades and property classes*

ISO 3506-7, *Fasteners — Mechanical properties of corrosion-resistant stainless steel fasteners — Part 7: Flat washers with specified grades and property classes*

ISO 17607-1, *Steel structures — Execution of structural steelwork — Part 1: General requirements and terms and definitions*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 17607-1 and the following apply.

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

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

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