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FASTENERS - TIGHTENING PERFORMANCE - TORQUE/ANGLE SIMPLIFIED TEST METHOD

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Contents

page

Foreword

This document (EN 14831:2005) has been prepared by Technical Committee CEN/TC 185, “Threaded and non-threaded mechanical fasteners and accessories”, the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by October 2005, and conflicting national standards shall be withdrawn at the latest by October 2005.

This document includes a Bibliography.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

1 Scope

This document specifies a test method for fasteners with ISO metric thread from M6 to M16 and with property classes 8.8 to 12.9 for bolts and screws and with property classes 8 to 12 for nuts, to check their tightening performance in the elastic range.

It applies to steel fasteners with an ISO metric thread according to ISO 68-1.

It applies to fasteners having a friction coefficient from 0,06 up to and including 0,18. For higher values of friction coefficients, the dispersion of test results increases and the test method should not be applied. For lower values friction of coefficients, which are for very specific applications and require special lubrication, this document does not apply.

This comparative test method can be used to monitor stability of a production process (such as coating, lubrication, shot-blasting) or to compare various production manufacturing lots. It can also be used to detect fasteners, which are out of specification.

NOTE This simplified test method has been developed to avoid systematic use of more complex procedures.

In case of dispute the torque/tension test method according to EN ISO 16047 is the referee test.

This document does not apply for assessment of fasteners in actual assembly conditions; it does not allow the measurement of operating friction coefficients.

2 Normative references

The following referenced documents are indispensable for the application 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.

EN 20898-2, *Mechanical properties of fasteners — Part 2: Nuts with specified proof load values — Coarse thread (ISO 898-2:1992).*

EN ISO 898-1, *Mechanical properties of fasteners made of carbon steel and alloy steel — Part 1: Bolts, screws and studs (ISO 898-1:1999).*

EN ISO 4759-3, *Tolerances for fasteners — Part 3: Plain washers for bolts, screws and nuts — Product grades A and C (ISO 4759-3:2000).*

EN ISO 7093-1, *Plain washers — Large series — Part 1: Product grade A (ISO 7093-1:2000).*

EN ISO 16047, *Fasteners — Torque/clamp force testing (ISO 16047:2005).*

ISO 965-2, *ISO general purpose metric screw threads — Tolerances — Part 2: Limits of sizes for general purpose external and internal screw threads — Medium quality.*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1
manufacturing lot
quantity of fasteners of a single designation including product grade, property class and size, manufactured from bar, wire, rod or flat product from a single cast, processed through the same or similar steps at the same time or over a continuous time period through the same heat treatment and/or coating process, if any

NOTE 1 Same heat treatment or coating process means: