

Contents

Page

Foreword	v
Introduction	vii
1 Scope	1
2 Normative references	2
3 Terms and definitions	2
4 Symbols	2
5 Designation systems	3
5.1 Nut styles	3
5.2 Property classes	3
5.2.1 Regular nuts (style 1) and high nuts (style 2)	3
5.2.2 Thin nuts (style 0)	4
6 Design of bolt and nut assemblies	4
7 Material, heat treatment, chemical composition and steel microstructure	4
7.1 General	4
7.2 Heat treatment	5
7.3 Chemical composition	5
7.4 Steel microstructure	7
7.4.1 Non-quenched and tempered nuts	7
7.4.2 Quenched and tempered nuts	7
8 Mechanical and physical properties	7
8.1 General	7
8.2 Proof load	8
8.3 Hardness	9
8.4 Surface integrity	11
9 Inspection	11
9.1 Manufacturer's inspection	11
9.2 Supplier's inspection	11
9.3 Purchaser's inspection	11
9.4 Delivery of test results	12
10 Test methods	12
10.1 Proof load test	12
10.1.1 General	12
10.1.2 Applicability	12
10.1.3 Apparatus	12
10.1.4 Testing device	12
10.1.5 Test procedure	13
10.1.6 Test results and requirements	14
10.2 Hardness tests	14
10.2.1 General	14
10.2.2 Applicability	14
10.2.3 Test methods	14
10.2.4 Test procedures for routine inspection	14
10.2.5 Hardness determined in the thread	16
10.2.6 Hardness determined in the core	17
10.2.7 Uniformity of hardness for quenched and tempered nuts (QT)	18
10.2.8 Requirements for non-quenched and tempered nuts (NQT)	18
10.2.9 Requirements for quenched and tempered nuts (QT)	18
10.3 Steel microstructure	19
10.3.1 General	19
10.3.2 Applicability	19

10.3.3	Test method	19
10.3.4	Test results and requirements	19
10.4	Retempering test	19
10.4.1	General	19
10.4.2	Test procedure	19
10.4.3	Test results and requirements	20
10.5	Surface discontinuity inspection	20
11	Marking and labelling	20
11.1	General requirements	20
11.2	Property class marking symbols for nuts with full loadability	20
11.3	Property class marking symbols for nuts with reduced loadability	21
11.4	Manufacturer's identification mark	21
11.5	Nut marking	21
11.6	Marking of the packages (labelling)	23
Annex A (normative) Thread dimensions of the test mandrel		25
Annex B (informative) Design principles for nuts		27
Annex C (informative) Stress under proof load, S_p		29
Bibliography		31