

DIN EN 16602-70-46:2015-06 (E)

Space product assurance - Requirements for manufacturing and procurement of threaded fasteners; English version EN 16602-70-46:2014

Content	page
Foreword	4
1 Scope.....	5
2 Normative references.....	6
3 Terms, definitions and abbreviated terms.....	8
3.1 Terms defined in other standards.....	8
3.2 Terms specific to the present standard	8
3.3 Abbreviated terms	9
4 Requirements.....	10
4.1 Fabrication.....	10
4.1.1 General.....	10
4.1.2 Raw material.....	10
4.1.3 Head forming	10
4.1.4 Heat treatment.....	11
4.1.5 Head-to-shank fillet rolling	11
4.1.6 Threads	11
4.1.7 Identification marking.....	12
4.1.8 Surface treatment.....	12
4.1.9 Workmanship, handling and packaging.....	12
4.2 Dimensional and metallurgical requirements	13
4.2.1 General.....	13
4.2.2 Nominal dimensions	13
4.2.3 Head-to-shank fillet.....	13
4.2.4 Non-destructive inspections	14
4.2.5 Metallurgical examination	15
4.2.6 Measurement of hydrogen content.....	16
4.2.7 Outgassing and offgassing	16
4.3 Mechanical testing.....	17

4.3.1	General	17
4.3.2	Hardness test	17
4.3.3	Tensile test	18
4.3.4	Shear test	19
4.3.5	Fatigue test.....	19
4.3.6	Creep test.....	20
4.3.7	Corrosion test	22
4.3.8	Stress-corrosion test.....	22
4.4	Quality assurance.....	23
4.4.1	General	23
4.4.2	Quality requirements.....	23
Annex A (normative) Customer specification document for threaded fasteners – DRD.....	26	
Annex B (normative) Product conformance report (PCR) – DRD	28	
Annex C (informative) Inspection levels, acceptance quality limits (AQL) and limiting quality levels (LQ) for inspection of fasteners	30	
Bibliography.....	32	

Figures

Figure 4-1: Tolerance of head-to-shank fillet profile	14
Figure 4-2: Location of microsections for metallurgical examination.....	15
Figure 4-3: Area delimiting interruptions in grain flow in the head-to-shank region.....	16
Figure 4-4: Example of a regular grain flow in a threaded surface.....	16
Figure 4-5: Locations for hardness testing (indicated with cross symbol)	18
Figure 4-6: Loading schematic for tensile testing of threaded fasteners	21
Figure 4-7: Schematic of an example of double-shear loading jigs	22

Tables

Table 4-1: Maximum allowed values of the extension C of the distorted area shown in Figure 4-1 14

Table C- 1: Inspection levels, acceptance quality limits (AQL) and limiting quality levels (LQ) for inspection of fasteners	30
---	----