

Schedule of Accreditation

issued by

United Kingdom Accreditation Service

21 - 47 High Street, Feltham, Middlesex, TW13 4UN, UK

 <p>Accredited to ISO/IEC 17025:2005</p>	<h3>SPS Technologies Limited</h3> <p>Issue No: 015 Issue date: 12 October 2010</p>	
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<p>Testing performed at the above address only</p>		

DETAIL OF ACCREDITATION

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
FASTENERS:METAL METALS, ALLOYS and METAL PRODUCTS	<u>Corrosion Tests</u>	
	Salt spray	ASTM B117-09
	<u>Mechanical Tests</u>	
Metals and alloys	Tensile at ambient temperature (Forces 5 to 500 kN)	BS EN ISO 6892-1 :2009 (Method B) BS 4A4:Part 1:Section 1:1966
Nuts, bolts and assemblies	Tensile at ambient temperature (Forces up to 1200 kN)	NASM 1312-8 NAM 1312-108
Bolts	Shear at ambient temperature (Forces up to 1200 kN)	NASM 1312-13 NAM 1312-113
	Fatigue at ambient temperature (Forces max from 1 to 450 kN)	NASM 1312-11 NAM 1312-111
Bolts	Stress rupture in the temperature range 923 to 1123 K (Forces up to 50 kN)	NASM 1312-10 NAM 1312-110
Nuts	Torque (up to 600 Nm)	Documented In-House Methods LI5 based on ISO 7481-1984(E) Clauses 3.3, 3.8 and 3.9 ISO 8642-1986(E) Clauses 3.3, 3.7 and 3.8
Nuts and Bolts	Stress durability	Documented In-House Method, Laboratory Instruction No 41



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Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
FASTENERS:METAL METALS, ALLOYS and METAL PRODUCTS (cont'd)	<u>Mechanical Tests</u> (cont'd)	
Bolts	Recess torque	Documented In-House Method LI46 based on NASM 1312-25/125
Metal fasteners	Hardness: Vickers (HV30) Rockwell (HRC)	BS EN ISO 6507-1:2005 BS EN ISO 6508-1:2005 ASTM E18-08b
Titanium alloy fasteners	Hydrogen determination	Documented In-House Method No LI 16
Titanium alloys Low alloy steels Stainless steels Ni-base alloys	Metallographic determination of:- Grain size Grain flow Surface contamination Thread defects Overheating	ASTM E112-96 Documented In-House Methods LI 7, 9, 20
Nuts, bolts and machined components	<u>Dimensional Tests</u> Length (to ± 0.025 mm) Thread major and minor diameters, simple and effective diameters (to ± 0.005 mm) Angle (to $\pm 1^\circ$) Radii (to ± 0.05 mm) Surface texture (to $0.2 \mu\text{m RA}$) Coating thickness	Documented In-House Methods: Inspection instructions Nos 1 to 9 and 12 to 30 ANSI/ASME B1.3M:1992 FED-STD-H28\2B and 20A Documented In-House Method: Inspection Instruction No 9 Documented In-House Methods: Inspection Instruction No 10 and 54
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