

Schedule of Accreditation

issued by

United Kingdom Accreditation Service

2 Pine Trees, Chertsey Lane, Staines-upon-Thames, TW18 3HR, UK

 <p>0281</p> <p>Accredited to ISO/IEC 17025:2017</p>	<h3>Special Metals Wiggin Ltd trading as IncoTest</h3> <p>Issue No: 046 Issue date: 06 April 2021</p>	
	<p>A Division of Special Metals Wiggin Ltd Holmer Road Hereford HR4 9SL</p>	<p>Contact: Teresa Smith Tel: +44 (0)1432 382812 Fax: +44 (0)1432-353545 EMail: teresa.smith@incotest.co.uk Website: www.incotest.co.uk</p>
<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
METALS, ALLOYS and METALLIC PRODUCTS	<u>Mechanical Tests</u>	
	Bend	BS EN ISO 7438:2016
	Creep and Stress Rupture:	
	Creep (temperature range ambient to 1100°C)	BS EN 2002-005:2007 BS EN ISO 204:2018 ASTM E139-11(2018)
	Stress Rupture (temperature range ambient to 1200°C)	BS EN 2002-005:2007 BS EN ISO 204:2018 ASTM E139-11(2018) ASTM E292-18
	Coefficient of linear expansion	Documented In-house Method 66-6801 based on ASTM E228-17
	Fatigue:	
	Fatigue: Low cycle tensile/compressive waveforms with Force (temperature range ambient to 1200°C) (Forces up to ± 100 kN)	BS 3518-3:1963(2015) ASTM E466-15
	Hardness:	
	Vickers (HV5, 10 & 30)	BS EN ISO 6507-1:2018 ASTM E92-17
Low Force and Microhardness Vickers (HV0.1, 0.2 & 0.3)	BS EN ISO 6507-1:2018 ASTM E384-17	



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	Brinell (HB10/3000 and 2.5/187.5)	BS EN ISO 6506-1:2014 ASTM E10-18
METALS, ALLOYS and METALLIC PRODUCTS (cont'd)	<u>Mechanical Tests</u> (cont'd)	
	Rockwell (B and C scales only)	BS EN ISO 6508-1:2016 ASTM E18-20
	Impact:	
	Charpy (V- and U- notches) (temperature range -60°C to 400°C and -196 °C and -80 °C (-78.5 °C) dry ice sublimation temperature)	BS EN ISO 148-1:2016 ASTM E23-18
	Tensile (ambient temperature)	BS EN ISO 6892-1:2019 BS EN 2002-1:2005 ASTM E8/E8M-16a ASTM A370-20
	Tensile (temperature range ambient to 1000°C) (Forces up to 600 kN)	BS EN ISO 6892-2:2018 BS EN 2002-2:2005 ASTM E21-20
	Tensile (temperature range -80°C to ambient and -196 °C) (Forces up to 600 kN)	Documented In-house Methods 6-6823 and 6-6824
Fasteners		ASTM F606/F606M-19
	<u>Physical Tests</u>	
	Dynamic Young's Modulus of Elasticity at ambient temperature	Documented In-house Method 6-6803 based on ASTM E1875-20
	<u>Metallurgical Tests</u>	
	Non-metallic inclusions	ASTM E45-18a ISO 4967:2013
	Grain size	BS EN ISO 643:2020 ASTM E112-13 ASTM E930-18 ASTM E1181-02 (2015)



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Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
	Alpha Case	Documented in-house method SI 6-6740 using micrographic and micro hardness techniques.
METALS and ALLOYS Carbon & Low Alloy Steels, Cobalt Alloys, Nickel Alloys (including Cupro Nickels), Stainless Steels, and Titanium Alloys	<u>Chemical Tests</u> Elemental Analysis Aluminium Cerium Chromium Cobalt Copper Hafnium Iron Manganese Molybdenum Nickel Niobium Palladium Phosphorus Silicon Tantalum Titanium Tungsten Vanadium Yttrium Zirconium	Documented in-house method SI 6-6919 using X-ray fluorescence techniques
Nickel based Alloys	Elemental Analysis Boron Calcium Magnesium Silicon	Documented in-house method SI 6-6934 using Spark Source optical emission techniques



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Carbon & Low Alloy Steels, Cobalt Alloys, Nickel Alloys and Stainless Steels	Elemental Analysis Antimony Arsenic Bismuth Cadmium Gallium Indium Magnesium Lead Selenium Silver Tellurium Thallium Tin Zinc	Documented in-house method SI 6-6890 using Hollow Cathode Source optical emission techniques
Nickel Alloys	<u>Chemical Tests (Cont'd)</u> Determination of Trace Elements Be, B, C, Mg, Al, Si, P, S, Cl, K, Ca, Sc, Ti, V, Cr, Mn, Fe, Co, Ni, Cu, Zn, Ga, As, Se, Y, Zr, Nb, Mo, Ru, Rh, Pd, Ag, Cd, In, Sn, Sb, Te, Ba, La, Ce, Pr, Nd, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb, Lu, Hf, Ta, W, Re, Pt, Tl, Pb, Bi, Th, U	Documented in-house method SI-6-6896 using Glow Discharge Mass Spectrometer
Nickel Alloys	Indicative determination of the following elements: Li, F, Na, Ge, Br, Sr, I, Os, Ir, Au, Hg Note: A Lower Reporting Limit of 25 parts per million is applicable for the elements listed as "indicative"	Documented in-house method SI-6-6896 using Glow Discharge Mass Spectrometer
METALS and ALLOYS Carbon and Low Alloy Steels, Stainless Steels, Cast Irons, Cobalt Alloys, Copper Alloys, Nickel Alloys and Titanium Alloys	Determination of Carbon and Sulphur	Documented in-house method SI 6-6938 using Combustion technique with IR detection



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Carbon and Low Alloy Steels, Stainless Steels, Cast Irons, Cobalt Alloys, Nickel Alloys and Titanium Alloys	Determination of Hydrogen	Documented in-house method SI 6-6939 using Inert gas fusion techniques
Carbon and Low Alloy Steels, Stainless Steels, Cast Irons, Cobalt Alloys, Copper Alloys, Nickel Alloys and Titanium Alloys	Determination of Oxygen and Nitrogen	Documented in-house method SI 6-6918 using Inert gas fusion techniques
METALS and ALLOYS	<u>Chemical Tests</u>	



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Carbon and Low Alloy Steels, Stainless Steels, Cast Irons, Cobalt Alloys, Copper Alloys, Aluminium Alloys, Nickel Alloys and Titanium Alloys	Elemental Analysis Aluminium Antimony Arsenic Beryllium Boron Calcium Cerium Chromium Cobalt Copper Hafnium Iron Lanthanum Lead Manganese Magnesium Molybdenum Nickel Niobium Palladium Phosphorus Platinum Rhenium Silicon Tantalum Titanium Tin Tungsten Vanadium Yttrium Zinc Zirconium	Documented in-house method SI 6-6935 using Inductively Coupled Plasma Source optical emission techniques

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