Schedule of Accreditation

issued by

United Kingdom Accreditation Service

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

0136

Accredited to ISO/IEC 17025:2005

Element Materials Technology Sheffield Ltd, Trading as Element Materials Technology Sheffield – Magna Way

Issue No: 054 **Issue date:** 13 May 2020

3 Ignite
Magna Way
Rotherham
South Yorkshire
S60 1FD

Contact: Dr Stuart Read
Tel: +44 (0) 7554 328412
Fax: +44 (0)114 723 248
E-Mail: info.sheffield@element.com
Website: www.element.com

Testing performed by the Organisation at the locations specified below

Locations covered by the organisation and their relevant activities

Laboratory locations:

Location details		Activity	Location code
Address 3 Ignite Magna Way Rotherham South Yorkshire S60 1FD	**Local contact** Dr Stuart Read Tel: +44 (0)7554 328412 Fax: +44 (0)114 723 248 E-Mail: stuart.read@element.com Website: www.element.com	Mechanical testing Elemental analysis Metallurgical tests Corrosion testing Dimensional measurements	A
Address Temple Close Magna 34 Rotherham South Yorkshire S60 1FH	**Local Contact** Dr Stuart Read Tel: +44 (0)7554 328412 Fax: +44 (0)114 723 248 E-Mail: stuart.read@element.com Website: www.element.com	Non Destructive Testing	C

Site activities performed away from the locations listed above:

Location details	Activity	Location code
Any suitable customer site	Alloy categorisation	B

DETAIL OF ACCREDITATION

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used	Location Code
METALS, ALLOYS and METAL PRODUCTS	Chemical Tests		
Cast iron, Ferrous alloys, High speed tool steel, Stainless steels	C, Si, Mn, P, S, Cr, Mo, Ni, Al, Cu, B, Co, Pb, Ti, V, Nb, W, Sn, Mg, Zr, N	Documented In-House Methods OES MAX1, ICP 6000 and Combustion CS844 using spark OES, ICP-OES, Combustion & Fusion techniques	A
Aluminium alloys	Cu, Si, Mn, Cr, Ni, Bi, Cd, Pb, Mg, Sn, Ti, V, Zn, Fe, Zr	Documented In-House Methods OES MAX1 and ICP6000 using spark OES and ICP-OES techniques	A
Cobalt alloys	C, Si, Mn, P, S, Cr, Ni, Mo, Fe, W, Al, Sn, Ti, B, Co, Cu	Documented In-House Methods OES MAX1 and ICP6000 using spark OES and ICP-OES techniques and CS844 using Combustion	A
Copper alloys	Si, Mn, P, S, C, Cr, Ni, Al, Bi, Cd, Sb, Cu, Pb, Mg, Sn, Be, Zn, Ag, Fe, B	Documented In-House Methods OES MAX1, ICP 6000 and Combustion CS844 using spark OES, ICP-OES, Combustion & Fusion techniques	A
Nickel alloys	C, Si, Mn, Ta, P, S, Cr, Mo, Ni, Al, Co, Cu, Pb, Ti, W, V, Nb, Fe	Documented In-House Methods OES MAX1, ICP 6000 and Combustion CS844 using spark OES, ICP-OES, Combustion & Fusion techniques	A
Titanium alloys	Ti, C, V, Al, Fe, Mg, Mn, Zr, Mo, Si, Sn, Cu	Documented In-House Methods OES MAX1, ICP 6000 and Combustion CS844 using spark OES, ICP-OES, Combustion & Fusion techniques	A

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used	Location Code
METALS, ALLOYS and METAL PRODUCTS (cont'd)	Chemical Tests (cont'd)		
Tungsten Carbides	C	Documented In-House Method CS844 Combustion Technique	A
White Metals (Lead, Tin and Zinc alloys)	Mn, Ni, Pb, Bi, Sb, Fe, Cu, Al, Sn, Zn	Documented In-House Method ICP6000 using ICP-OES technique	A
Ferrous alloys and stainless steels, Cu alloy, Co alloy, Ni alloy & Ti alloy	Hydrogen, Nitrogen and Oxygen	Documented In-House Method ONH836 using fusion technique	A
Steel, stainless steel, Nickel alloy, Cobolt alloy, Titanium alloy, and Aluminium alloy	Categorisation of alloys	Documented In-House Method XRF 1 using Niton XLt 898P XRF analyser	A, B
	Corrosion Tests		
Iron, Steels and other ferrous metals	Intergranular corrosion	BS EN ISO 3651-2:1998 ASTM A262-15 Methods A, C & E ASTM G28-02(2015) Method A	A
	Pitting corrosion	ASTM G48-11(2015) Method A	A
	Mechanical Tests		
	Bend	BS EN ISO 7438:2016	A
	Compression (temperature - ambient) (forces from 0.4 kN to 2000 kN)	Documented In-House Methods MTP12	A
	Impact: Izod Charpy (V- notch) (temperatures -196°C to ambient)	BS 131-1:1961(2015) BS EN ISO 148-1:2016 ASTM E23-18	A

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used	Location Code
METALS, ALLOYS and METAL PRODUCTS (cont'd)	<u>Mechanical Tests</u>		
	Hardness: Brinell (10/3000, 10/1000, 5/750)	BS EN ISO 6506-1:2014 ASTM E10-18	A
	Rockwell (Scales B & C)	BS EN ISO 6508-1:2016 ASTM E18-19	A
	Vickers (0.3, 0.5, 1.0, 10 & 30 kg)	BS EN ISO 6507-1:2018 ASTM E92-17 ASTM E384-17 Documented In-House Method MET 5	A
	Stress-rupture (forces from 1.5 kN (330lbs) to 45 kN (10,000lbs)) (ambient temperature to 950°C)	BS EN 2002-005:2007 BS EN ISO 204:2018 ASTM E139-11 (2018) ASTM E292-18	A
	Tensile: (temperature - ambient) (forces from 0.2 kN to 250 kN)	BS EN ISO 6892-1:2019 BS EN 2002-1:2005 BS 4A4-1:Section 1:1966 (withdrawn) ASTM A370-19^{e1} ASTM E8/E8M-16a	A
	Tensile: (Elevated temperature from ambient to 950°C) (forces from 0.2 kN to 250 kN)	BS EN ISO 6892-2:2018 BS EN 2002-2:2005 ASTM E21-17e^{1}	A
	Proof and Tensile strength (temperature - ambient) (forces from 0.2 kN - 2000 kN)	Documented In-House Method MTP2	A

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used	Location Code
METALS, ALLOYS and METAL PRODUCTS (cont'd)	<u>Mechanical Tests</u>		
Bolts, screws and nut	Tension and compression	To documented plans agreed with clients. BS 4882:1990(2017) Appendix D BS EN ISO 898-1:2013 BS EN ISO 898-2:2012 BS EN ISO 3506-1:2009 (Excluding clause 7.2.5) BS EN ISO 3506-2:2009 BS 3692:2014 (nuts) ASTM A194/A194M-18 ASTM A370-19^{e1} ASTM F606/F606M-16 SAE J429: 99 NES 862 Part 3 NES 862 Part 5	A
Chains, chain slings, rings, links, hooks, shackles, swivels, eye-bolts and pulley blocks	Proof load (forces from 0.4kN to 2000 kN)	Lifting operations and lifting equipment regulations 1998	A
Metal Scaffolding Couplers	Friction type sleeve couplers - bending moment	BS EN 74-1:2005	
	Right angle couplers - rotation, cruciform bending moment and stiffness, pull apart force, and indentation test	BS EN 74-1:2005	A
	Failure force for right angle and swivel couplers	BS EN 74-1:2005	A
	Slippage force for right angle, swivel and sleeve couplers	BS EN 74-1:2005	A
	Slippage force for Putlog couplers	BS 1139-2.2:2009+A1:2015	A

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used	Location Code
METALS, ALLOYS and METAL PRODUCTS (cont'd)	<u>Metallurgical Tests</u>		
Austenitic stainless steels	Case depth Decarburised depth	BS 6286:1982(2005) BS EN ISO 2639:2002 ISO 3754:1976 Documented In-House Method MET1	A
	Macroscopic determination of grain flow	Documented In-House Method MET3	A
	Grain size	ASTM E112-13	A
	Identification and counting of inclusions	ASTM E45-18a Documented In-House Methods MET2	A
	<u>Mechanical Tests</u>		
Weldments and brazings	Tests designated in specified welding codes as detailed below Bend, Fracture, Hardness, Impact, Tensile, Micro and Macro-examination tests in accordance with specified welding and brazing codes	BS 4871-3:1985 (withdrawn) BS 4872-1:1982(2018) BS 4872-2:1976(2018) BS EN 287-1:2011 (Withdrawn) BS EN ISO 9606-2:2004(2019) BS EN ISO 15614-1:2017 BS EN ISO 15614-2:2005(2014) BS EN ISO 15614-8:2016 BS EN ISO 4136:2012(2018) BS EN ISO 5173:2010+A1:2011 BS EN ISO 5178:2019 BS EN ISO 9015-1:2011 BS EN ISO 9015-2:2016 BS EN ISO 9016:2012 BS EN ISO 9017 :2018 BS EN 17639 :2013 BS 2633:1987(2016) PD 5500:2015+A1 ASME IX-2019 DGQA Inspection Instruction AVP 84 and technically equivalent specifications	A

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used	Location Code
METALS, ALLOYS and METAL PRODUCTS (cont'd)			
Steel tubes	Physical Tests		
	Dimensional assessment	BS EN 39:2001 Documented In-House Method MTP19	A
	Mechanical Tests		
Machinery & mechanical devices Engineering Components & tools (dimensional)	General dimensional measurements with a best measurement capability (uncertainty) of:	Documented In-House Method MTP21 and associated customer drawings and specifications	A
	Length up to 1000 x 750 x 500 mm - 0.8 + (3 x length in metres) micrometres		A
Machinery & mechanical devices Engineering Components & tools (dimensional) (cont'd)	General dimensional measurements with a best measurement capability (uncertainty) of: (cont'd)	Documented In-House Method MTP21 and associated customer drawings and specifications(cont'd)	A
	Diameter from 1 up to 400 mm - 2.5 micrometres		A
LIGHT and DENSE METALS and ALLOYS including castings, forgings and weldments	Non Destructive Testing		C
	Liquid Penetrant Method Fluorescent - in line Colour contrast - manual application	BS M39:1972(1998) BS EN ISO 3452-1:2013 (amd 2014) BS EN 10228-2:2016 ASME V-2017 RRP 58003 Rev J API 6A:20th Edition	

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used	Location Code
LIGHT and DENSE METALS and ALLOYS including castings, forgings and weldments (cont'd)	Non Destructive Testing (cont'd)		
	Ultrasonic Flaw Detection (Manual contact)	BS M36:1970 (1984) BS 3923-1:1986(Withdrawn) BS 4124:1991(Withdrawn) BS EN 1714:1998 (Withdrawn) BS EN ISO 17640:2017 BS EN 10160:1999 (Withdrawn) BS EN 10228-3:2016 BS EN 10228-4:2016 BS EN 12680-1:2003 ASME V-2017 MIL-STD-2154 (1982)(Withdrawn) AMS-STD-2154:2012 rec C 2017 ASTM A388/A338M-18 API 6A:20th Edition BS EN 10308:2002	C
	Ultrasonic Flaw Detection (Immersion technique)	BS M36:1970(1984) BS 4124:1991 (Withdrawn) BS EN 10160:1999 BS EN 10228:Part 3:1998 BS EN 10228:Part 4:1999 BS EN 12680-1:2003 ASME V-2017 RRP 58001 Rev C MIL-STD-2154(1982)(Withdrawn) AMS-STD-2154:Rev C 2017	C
FERROMAGNETIC METALS	Magnetic Particle: Black ink - universal and portable kit Fluorescent ink - universal and portable kit (AC and DC up to 3000 A)	BS EN 1290:1998 (Withdrawn) BS EN 10228-1:2016 BS EN ISO 9934-1:2016 API 6A:20th Edition BS 6072:1981(1986) BS 5138:1974(1988) ASME V-2017 RRP 58004 Rev G BS EN ISO 17638:2016	C
END			