

# Schedule of Accreditation

issued by

## United Kingdom Accreditation Service

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

 <p>4444</p> <p>Accredited to ISO/IEC 17025:2005</p>	<h3>MIS Mechanical Limited</h3> <p>Issue No: 008    Issue date: 22 December 2011</p>	
	<p>Eden House Watling Street Industrial Estate Leadgate Consett County Durham DH8 6TA</p>	<p>Contact: Mr R L Hannant Tel: +44 (0)1207 599260 Fax: +44 (0)1207 501507 E-Mail: <a href="mailto:info@mistesting.co.uk">info@mistesting.co.uk</a> Website: <a href="http://www.mistesting.co.uk">www.mistesting.co.uk</a></p>
<p>Testing performed by the Organisation at the locations specified below</p>		

### Locations covered by the organisation and their relevant activities

#### Laboratory locations:

Location details	Activity	Location code
<p><b>Location Address</b> Eden House Watling Street Industrial Estate Consett County Durham DH8 6TA</p> <p><b>Local contact</b> Mr R L Hannant Tel: +44 (0)1207 599260 Fax: +44 (0)1207 501507 Email: <a href="mailto:sales.consett@mistesting.co.uk">sales.consett@mistesting.co.uk</a></p>	<p>Metals &amp; Weldments - Chemical tests Metals &amp; Weldments - Corrosion tests Metals &amp; Weldments - Mechanical tests Metals &amp; Weldments - Metallurgical tests</p>	CON
<p><b>Location Address</b> Unit 5A Telford Square Business Park Livingston West Lothian EH54 5PQ</p> <p><b>Local contact</b> Miss A Diver Tel: +44 (0) 1506 432023 Fax: +44 (0) 1506 238131 Email: <a href="mailto:sales.livingston@mistesting.co.uk">sales.livingston@mistesting.co.uk</a></p>	<p>Metals &amp; Weldments - Corrosion tests Metals &amp; Weldments - Mechanical tests Metals &amp; Weldments - Metallurgical tests</p>	LIV
<p><b>Location Address</b> Unit 2 Western Access Kestrel Road Trafford Park Manchester M17 1SF</p> <p><b>Local contact</b> Mr J Wallace Tel: + 44 (0)1618 737662 Fax: + 44 (0)1618 733547 Email: <a href="mailto:sales.manchester@mistesting.co.uk">sales.manchester@mistesting.co.uk</a></p>	<p>Metals &amp; Weldments - Corrosion tests Metals &amp; Weldments - Mechanical tests Metals &amp; Weldments - Metallurgical tests Organic Coatings and Paints</p>	MAN

#### Site activities performed away from the locations listed above:

Location details	Activity	Location code
Commercial and industrial premises and sites	Categorisation of alloys (Positive Material Identification)	C&I



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DETAIL OF ACCREDITATION

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used	Location Code
<b>METALS, ALLOYS and METAL PRODUCTS</b>	<u>Chemical Tests</u>		
Plain carbon and low alloy steels	Elemental analysis C, Si, Mn, P, S, Cr, Mo, Ni, Al, Al <sub>sol</sub> , Cu, Nb, Ti, V, Sn, Ca, B, W, N <sub>2</sub>	Documented In-House Methods using Optical Emission Spectrometry	CON
Duplex and stainless steels	Elemental analysis C, Si, Mn, P, S, Cr, Mo, Ni, Al, Cu, Nb, Ti, V, W, N <sub>2</sub>	Documented In-House Methods using Optical Emission Spectrometry	CON
Steel, stainless steel, Nickel alloys, Titanium alloys, Cobalt alloys, Copper alloys and Aluminium alloys	Categorisation of alloys (Positive Material Identification)	Documented In-House Method ITP Chem 002	CON, LIV, MAN, C&I
	<u>Corrosion Tests</u>		
Stainless steels	Susceptibility to Intergranular attack	ASTM A262-10 Practice E & C	CON, LIV, MAN
	Susceptibility to Intergranular Corrosion	ASTM G28-02(2008)	CON, LIV, MAN
	Pitting Corrosion resistance	ASTM G48-11 Method A	CON, LIV, MAN
Steels	Hydrogen Induced Cracking	NACE TM0284-2003	MAN
	<u>Mechanical Tests</u>		
	Bend	BS EN ISO 7438:2005 ASTM E290-09	CON, LIV, MAN
	Ring Flattening	API Spec 5L, 44 <sup>th</sup> Edition 2007 BS EN ISO 8492:2004 ASTM A106-10 ASTM A370-11 ASTM A530/530M-04a(2010)	CON, LIV, MAN
	Ring Expansion	ASTM A513-08	CON, MAN



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METALS, ALLOYS and METAL PRODUCTS (cont'd)	<u>Mechanical Tests</u> (cont'd)		
	Hardness:		
	Brinell (HB 10/3000)	BS EN ISO 6506-1:2005 ASTM E10-10	CON, LIV, MAN
	Brinell (HB 1/30)	BS EN ISO 6506-1:2005 ASTM E10-10	MAN
	Rockwell (C Scale)	BS EN ISO 6508-1:2005 ASTM E18-08b	CON, LIV, MAN
	Rockwell (B Scale)	BS EN ISO 6508-1:2005 ASTM E18-08b	MAN
	Vickers (HV5, 10 & 30)	BS EN ISO 6507-1:2005 ASTM E384-11	CON, MAN
	Vickers (HV10 & 30)	BS EN ISO 6507-1:2005 ASTM E384-11	LIV
	Impact:		
	Charpy at -196°C and -140°C to ambient temperature	BS EN ISO 148-1:2010 ASTM A370- 11 ASTM E23- 07a	CON
	Charpy (V-notch only) Charpy at -196°C and -140°C to ambient temperature	BS EN ISO 148-1:2010 ASTM A370- 11 ASTM E23- 07a	LIV, MAN
	Izod	BS 131:Part 1:1961(1986)	CON, MAN
	Tensile  (Forces from 2kN to 600 kN)	BS EN ISO 6892-1 :2009 ASTM A370- 11 ASTM E8/E8M-08 API Spec 5L, 44 <sup>th</sup> Edition 2007	CON, LIV, MAN
Tensile (Forces from 2kN to 600 kN) (Temperatures ambient to 800°C)	BS EN ISO 6892-2:2011 ASTM E21-09	CON, LIV, MAN	



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METALS, ALLOYS and METAL PRODUCTS (cont'd)	<u>Mechanical and Metallurgical Tests</u> (cont'd)		
	Fracture Toughness:		
	CTOD (in the temperature range -50°C to ambient)	BS 7448-1:1991 ASTM E1290:2008	CON and MAN (MAN Fracture only)
	<u>Metallurgical Tests:</u>		
Steels	Grain size	ASTM E112-2010 BS EN ISO 643:2003	CON, LIV, MAN
	Characterisation of duplex grain size	ASTM E1181-02(2008)	LIV
	Volume fraction	ASTM E562-08	CON, LIV, MAN
	Austenite Spacing	ASTM E112-2010 DNV RP F112 October 2008	LIV, MAN, CON
	Inclusion Content	ASTM E45-11 Methods A & D	LIV, CON
	Macro-etch assessment of consumable electrode re-melted steel	ASTM A604/A604M-07	LIV
	Examination for deleterious phases	API Std 6A718 2 <sup>nd</sup> Edition Dec 2009	LIV



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Weldments	Tests designated in specified welding codes as detailed below:  Bend, Fracture, Hardness, Impact, Tensile and Macro-Micro examination in accordance with specific welding codes	BS EN 287-1:2011 BS EN ISO 9016:2011 BS EN ISO 5178:2011 BS EN ISO 4136:2011 BS EN ISO 5173:2010 BS EN 970:1997 BS EN ISO 9015-1:2011 BS EN 1320:1997 BS EN 1321:1997 BS EN ISO 9606-2:2004 BS EN ISO 15614-1:2004 + A1:2008 BS EN ISO 15614-2:2005 BS EN ISO 15614-6:2006 BS EN ISO 15614-8:2002 ASME IX:2010 API Spec 5L, 44 <sup>th</sup> Edition 2007 AWS B4.0M 2000 (2010) AWS D1.1/D1.1.M 2010 BS EN ISO 5817:2007 ASTM 190-92(2008)	CON, LIV & MAN
	Tests designated in specified welding codes as detailed below:  Fracture toughness testing (CTOD) of weldments (-50°C to ambient)	BS EN ISO 15653:2010	CON and MAN (MAN Fracture only)
ORGANIC COATINGS AND PAINTS	<u>Physical and Mechanical Tests</u>		
	Exposure of Coatings to Accelerated Weathering	ASTM G154-06 BS EN ISO 11507:2007	MAN
	Cathodic Disbondment of Coatings (Temperatures ambient to 100°C)	BS 3900 Part F11:1995 T/SP/CW6 BS EN 10289:2002 ASTM G42-96 ASTM G8-96(2010) WIS 4-52-01 BS EN ISO 15711:2004	MAN
	Coating Thickness	ASTM D7091-05 BS EN 10289:2002	MAN



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ORGANIC COATINGS AND PAINTS (cont'd)	<u>Physical and Mechanical Tests</u> (cont'd)		
	Holiday Detection	WIS-4-52-01 T/SP/CW6	MAN
	Determination of the level of Adhesion using the Vee Cut Method	WIS 4-52-01 T/SP/CW6 BS EN 10289:2002	MAN
	Hot Water Immersion	WIS 4-52-01 T/SP/CW6 BS EN 10289:2002	MAN
	Buchholz Hardness Testing of Polymeric Materials	BS EN ISO 2815:2003	MAN
	Pull Off Testing	ASTM D4541-09 BS EN ISO 4624:2003 BS EN 1542:1999 Coat 011	MAN
	Salt Spray Testing	ASTM B117-09 BS EN ISO 9227:2006	MAN
Flexibility Testing	T/PS/CW6 WIS 4-52-01	MAN	

END