Schedule of Accreditation

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United Kingdom Accreditation Service

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Accredited to ISO/IEC 17025:2017

Advanced Metallurgical Services Ltd

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Testing performed by the Organisation at the locations specified

Locations covered by the organisation and their relevant activities

Laboratory locations:

Location details		Activity	Location code
Unit 8C Broadgate Oldham Broadway Business Park Chadderton Oldham OL9 9XA United Kingdom	**Local contact:** Mr Alex Tousias Tel: +44 (0)1706-882891 E-Mail: alex.tousias@amstesting.co.uk	Mechanical testing Metallurgical evaluation Elemental analysis Corrosion testing Positive material identification (XRF)	A

Site activities performed away from the locations listed above:

Location details		Activity	Location code
Suitable customer premises	**Local contact:** Mr Alex Tousias Tel: +44 (0)1706-882891 E-Mail: alex.tousias@amstesting.co.uk	Positive Material Identification	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	Elemental Analysis		
Plain carbon and low alloy steels	C, Si, Mn, P, S, Cr, Ni, Al, B, Cu, Mo, N, V, Nb, Ti, Fe	Documented In-House Method AMS-6QP3-007 using Optical Emission Spectroscopy techniques	A
Stainless Steels	C, Si, Mn, P, S, Cr, Mo, Ni, Ti, Co, Cu, Nb, V, As, B, N, W	Documented In-House Method AMS-6QP3-007 using Optical Emission Spectroscopy techniques	A
Ferrous Base	Ta, Pb, Sb	Documented In-House Method AMS-6QP3-007 using Optical Emission Spectroscopy techniques – Bruker and Spectro.	A
Aluminium Alloys	Si, Fe, Cu, Mn, Mg, Cr, Ni, Zn, Ti, Bi, Cd, Ga, Pb, Sr, V, Zr, Sb, B, Co, Be, Na, Sn, Al (balance)	Documented In-House Method AMS-6QP3-007 using Optical Emission Spectroscopy (OES) techniques – Bruker.	A
Cobalt Alloys	C, Si, Mn, P, S, Cr, Mo, Ni, W, Fe, Al, Cu, Nb, V, N, B, Ti, Co (balance)	Documented In-House Method AMS-6QP3-007 using Optical Emission Spectroscopy (OES) techniques – Bruker.	A
Copper Alloys	Zn, Pb, Sn, P, Mn, Fe, Ni, Si, Mg, Al, As, Ag, Co, C, Cd, S, Cr, Bi, Sb, Se, Cu (balance)	Documented In-House Method AMS-6QP3-007 using Optical Emission Spectroscopy (OES) techniques – Bruker.	A
Nickel Alloys	C, Mn, P, S, Si, Cu, Cr, Mo, Fe, Al, Co, Mg, Nb, Ti, W, B, Pb, V, Ta, N, Ni (balance)	Documented In-House Method AMS-6QP3-007 using Optical Emission Spectroscopy (OES) techniques – Bruker	A
Titanium Alloys	Si, Mn, Cr, Ni, Mo, Al, Fe, V, Sn, C, Cu, N, O, Zr, Pd, Ti (balance)	Documented In-House Method AMS-6QP3-007 using Optical Emission Spectroscopy (OES) techniques – Bruker.	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>Categorisation of Alloys</u>		
Stainless steel Duplex Stainless steel	Positive Material Identification (PMI)	Documented In-House Method AMS-6QP3-027 using handheld XRF analyser	A + B
	<u>Mechanical Tests</u>		
	Bend	BS EN ISO 7438:2020	A
	Vickers Hardness (HV5, HV10, HV30)	BS EN ISO 6507-1:2023 ASTM E92-23	A
	Brinell Hardness (HBW 1/30 and HBW 10/3000)	BS EN ISO 6506-1:2014 ASTM E10-23 ASTM A370-24	A
	Rockwell Hardness (HRC, HRB)	BS EN ISO 6508-1:2023 ASTM E18-24 ASTM A370-24	A
	Impact: Charpy (temperatures from -196 °C and -120 °C to ambient)	BS EN ISO 148-1:2016 ASTM E23-23a ASTM A370-24 ASTM A923-23 (Method B)	A
	Through thickness tensile	BS EN 10164:2018	A
	Ring flattening	BS EN ISO 8492:2013 ASTM A370-24 ASTM A106/A106M-19a ASTM A530/A530M-18 ASTM A999/A999M-23 API 5L 46th Edition	A
	Ring expansion	BS EN ISO 8493:2004 ASTM A370-24 ASTM A513/A513M-20a	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> (cont'd)		
	Tensile (Ambient temperature) (forces from 4 kN to 1000 kN)	BS EN ISO 6892-1:2019 ASTM E8/E8M-24 ASTM A370-24 ASTM B557M-15(2023)	A
	Tensile (Elevated Temperature) Ambient to 200 °C (forces from 1.5 kN to 150 kN)	BS EN ISO 6892-2:2018 ASTM E21-20	A
Weldments	Tests designated in specified Welding Codes as detailed below: Bend, Fracture, Hardness, Impact, Tensile, Macro examination and Visual Inspection	BS EN ISO 9606-1 :2017 BS EN ISO 9606-2:2004 BS EN ISO 15614-1:2017+A1:2019 BS EN ISO 15614-2:2005 BS EN ISO 15614-5:2004 BS EN ISO 15614-6:2006 BS EN ISO 15614-7:2019 BS EN ISO 15614-8:2016 BS EN ISO 9016:2022 BS EN ISO 9017:2018 BS EN ISO 5178:2019 BS EN ISO 4136:2022 BS EN ISO 5173:2023 BS EN ISO 5817:2023 BS EN ISO 9015-1:2011 BS EN ISO 17637:2016 BS EN ISO 17639:2022 ASME BPVC IX - 2023 AWS D1.1/D1.1M (24th Edition)	A
C Steel, Stainless steel	Average Grain Size (by comparison method)	BS EN ISO 643:2020 ASTM E112-13(2021)	A
	Inclusion Content	ASTM E45-18a(2023) (Methods A & D)	A
	Volume Fraction (manual point count)	ASTM E562-19^{e1}	A
	Ferrite Determination (Automatic image analysis)	ASTM E1245-03 (2023)	A
	Austenite Spacing	DNV RP F112 Sept 2021 ASTM E112-13(2021)	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>		
Duplex Austenitic/Ferritic Stainless Steel	Detection of Detrimental Intermetallic Phase	ASTM A923-23 (Method A) Documented In-House Method AMS-6QP3 024 Appendix A	A
Carbon steel alloys, Stainless steel alloys, Aluminium alloys, Nickel alloys, and Copper alloys	Microstructural assessment	Documented In-House Method AMS-6QP3 024	A
	<u>Corrosion Tests</u>		
Austenitic Stainless steel	Resistance to Intergranular Corrosion Resistance/attack	ASTM A262-15(21) Practice B, C and E BS EN ISO 3651-1:1998 BS EN ISO 3651-2:1998 Method A	A
Stainless Steel and Nickel-Rich Chromium Bearing Alloys	Pitting and Crevice Corrosion Resistance	ASTM G48-11(2020)^{e1} Method A	A
Nickel-Rich Chromium Bearing Alloys	Resistance to Intergranular Corrosion Resistance	ASTM G28-22 Method A	A
Duplex Stainless Steel	Pitting and Crevice Corrosion Resistance (Detection of detrimental intermetallic phase)	ASTM A923-23 (Method C)	A
END			