

Schedule of Accreditation

issued by

United Kingdom Accreditation Service

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

 <p>UKAS TESTING 1611</p> <p>Accredited to ISO/IEC 17025:2017</p>	<h3>Advanced Metallurgical Services Ltd</h3> <p>Issue No: 028 Issue date: 09 August 2021</p>	
	<p>20 Main Road Oldham OL9 6LR United Kingdom</p>	<p>Contact: Mr Alex Tousias Tel: +44 (0)1706-882891 Fax: +44 (0)1706-882893 E-Mail: alex.tousias@amstesting.co.uk Website: www.amstesting.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 METAL PRODUCTS Plain carbon and low alloy steels	<u>Chemical Tests</u> Elemental Analysis 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
Stainless Steels	Elemental Analysis 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
	<u>Mechanical Tests</u>	
	Bend	BS EN ISO 7438:2016
	Hardness: Vickers (HV5, HV10, HV30)	BS EN ISO 6507-1:2018 ASTM E92-17
	Brinell Hardness (HBW 1/30 and HBW 10/3000)	BS EN ISO 6506-1:2014 ASTM E10-18 ASTM A370-20
	Rockwell Hardness (HRC, HRB)	BS EN ISO 6508-1:2016 ASTM E18-20 ASTM A370-20
	Impact: Charpy (temperatures from -196 °C and -120 °C to ambient)	BS EN ISO 148-1:2016 ASTM E23-18 ASTM A370-19 ASTM A923-14 (Method B)
	Tensile (forces from 5 to 1000 kN)	BS EN ISO 6892-1:2016 ASTM E8/E8M-16a ASTM A370-18 ASTM B557M-15
	Through thickness tensile	BS EN 10164:2004



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METALS, ALLOYS and METAL PRODUCTS (cont'd)	<u>Mechanical Tests</u> (cont'd)	
	Ring flattening	BS EN ISO 8492:2013 ASTM A370-20 ASTM A106/A106M-19a ASTM A530/A530M-18 ASTM A999-18 API 5L 46 th Edition
	Ring expansion	BS EN ISO 8493:2004 ASTM A370-20 ASTM A513/A513M-20a
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 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 15614-8:2002 BS EN ISO 9016:2012 BS EN ISO 9017:2018 BS EN ISO 5178:2011 BS EN ISO 4136:2012 BS EN ISO 5173:2010+A1:2011 BS EN ISO 5817:2014 BS EN ISO 9015-1:2011 BS EN SIO 17637:2016 BS EN ISO 17639:2013 ASME IX - 2019 AWS D1.1/D1.1M (24th Edition)
C Steel, Stainless steel	<u>Metallurgical Tests</u>	
	Average Grain Size (by comparison method)	BS 643:2020 ASTM E112-13
	Volume Fraction (manual pointcount)	ASTM E562-19 ^{e1}
	Ferrite Determination (Automatic image analysis)	ASTM E1245-03 (16)
	Austenite Spacing	DNV RP F112 Sept 2019 ASTM E112-13



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METALS, ALLOYS and METAL PRODUCTS (cont'd)	<u>Metallurgical Tests (cont'd)</u>	
Duplex Austenitic/Ferritic Stainless Steel	Detection of Detrimental Intermetallic Phase	ASTM A923-14 (Method A) Documented In-House Method AMS-6QP3 024 Appendix A
Carbon steel alloys, Stainless steel alloys, Aluminium alloys, Nickel alloys and Copper alloys	Microstructural assessment	Documented In-House Method AMS-6QP3 024
	<u>Corrosion Tests</u>	
Austenitic Stainless steel	Resistance to Intergranular Corrosion Resistance/attack	ASTM A262-15 Practice B, C and E BS EN ISO 3651-1:1998 BS EN ISO 3651-2:1998 Method A
Stainless Steel and Nickel-Rich Chromium Bearing Alloys	Pitting and Crevice Corrosion Resistance	ASTM G48-11(15) Method A
Nickel-Rich Chromium Bearing Alloys	Resistance to Intergranular Corrosion Resistance	ASTM G28-02(15) Method A
Duplex Stainless Steel	Pitting and Crevice Corrosion Resistance (Detection of detrimental intermetallic phase)	ASTM A923-14 (Method C)
END		