

Schedule of Accreditation

issued by

United Kingdom Accreditation Service

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

 <p>Accredited to ISO/IEC 17025:2005</p>	<p style="text-align: center;">CAPARO ENGINEERING LIMITED trading as Caparo Testing Technologies (Willenhall)</p> <p style="text-align: center;">Issue No: 034 Issue date: 31 March 2010</p>	
	<p>A division of Caparo Engineering Ltd Unit 11 Planetary Road Industrial Estate Willenhall West Midlands WV13 3XA</p>	<p>Contact: Mr Simon Bolton Tel: +44 (0)1902-305200 Fax: +44 (0)1902-303200 E-Mail: sbolton@caparotesting.co.uk Website: www.caparo.com</p>

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
<p>Address Unit 11 Planetary Road Industrial Estate Willenhall West Midlands WV13 3XA</p> <p>Local contact Mr Simon Bolton</p>	<p>METALS & WELDMENTS Chemical & physical Corrosion Mechanical Metallurgical</p> <p>ENVIRONMENTAL SAMPLES Water, waste/effluent</p> <p>FUELS, OILS & LUBRICANTS Petroleum products & lubricants/oils/greases</p>	A

Site activities performed away from the locations listed above:

Location details	Activity	Location code
<p>Address Customers premises (any)</p> <p>Local contact Mr Simon Bolton</p>	<p>METALS & WELDMENTS Chemical & physical - Elemental analysis</p>	B



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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
METALS and ALLOYS	<u>Chemical Tests</u>		
Aluminium alloys and copper alloys	Elemental analysis	Documented In-House Method CP10 using Atomic Absorption Spectroscopy	A
Cast irons, carbon steels and stainless steels	Carbon and sulphur content	Documented In-House Method CP50 using combustion techniques	
Cast irons, carbon steels and stainless steels Aluminium base alloys Copper base alloys Nickel base alloys	Elemental analysis	Documented In-House Method CP26 using Optical Emission Spectroscopy Atomic Absorption Spectroscopy Colorimetric, Gravimetric and Titrimetric Methods to BS Handbook Number 19:1970 BS 6200	
	Detection of Chromium VI	Documented In-House Method CP51 using colorimetric technique	
Plain Carbon, low alloy and stainless steels	Semi quantitative elemental analysis and alloy categorisation	Documented In-House Method CP48 using a spectroport mobile OES spectrometer	A, B
Aluminium Base Alloys	Semi Quantitative determination of Si, Fe, Cu, Mn, Mg, Zn, Ni, Cr, Pb, Sn and Ti	Documented In-House Method CP48	
Nickel Base Alloys	Si, Mn, Cr, Mo, Fe, Cu, Al, Co, Nb and Ti		
Cupro Nickel Base Alloys	Si, Mn, Cr, Mo, Fe, Cu, Al, Co and Ti		
Copper Base Alloys	Sn, Pb, Zn, Mn, Fe, Ni, Si, Mg, Cr, Al and Cu		



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WATER/EFFLUENT	<u>Chemical Tests</u>		A
Water	pH acid content	Documented In-House Method CP38	
Rinse water	pH Electrical conductivity Chloride levels	Documented In-House Method CP42	
Effluent	pH Toxic metals including: Cr Cu Ni Pb Zn Fe	Documented In-House Method CP39 using Atomic Absorption Spectroscopy	
	Suspended solids	Documented In-House Method CP40	
Effluent filter 'Cake'	Toxic metals including: Mn Ni Cr Zn Cu Pb Co Cd Fe Ca	Documented In-House Method CP43 using Atomic Absorption Spectroscopy	
	Hydride generation	Documented In-House Method CP10 using Atomic Absorption Spectroscopy	
PENETRANT FLUID	Water content	ASTM E1417-05e1	
FUELS/LUBRICANTS/ HYDRAULIC FLUIDS	Water content	Documented In-House Method CP45	



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METALS and ALLOYS	<u>Corrosion Tests</u>		A
Aluminium-silicon coated strip, sheet and plate	Coating mass	BS EN 10326:2004 BS EN 10327:2004 Documented In-House Method CP28	
Austenitic stainless steels	Resistance to intergranular corrosion	BS EN ISO 3651-2:1998 Method A ASTM A262-02a, Practice E	
	Ferric chloride pitting test	ASTM G48-03, Method A	
	Susceptibility to inter-granular corrosion	ASTM G28-02 (2008)	
Galvanised coated strips, sheet and plate	Coating mass	BS EN 10326:2004 Documented In-House Method CP28	
Metallic coatings	Coating thickness	BS EN ISO 2177:2004 Documented In-House Method CP20	
	Salt spray	ASTM B117-07 Documented In-House Method CP31	
	<u>Mechanical Tests</u>		
	Bend	BS EN ISO 7438:2005	
Seamless and welded steel tubes	Crushing	BS 980:1950 (Withdrawn)	
Seamless and welded steel tubes	Drift Flattening	BS 6323:Part 1:1982 (Withdrawn)	
	Plastic Strain Ratio (r value)	BS ISO 10113:2006	
	Tensile Strain Hardening Exponent (n Value)	BS ISO 10275:2007	
	Hardness: Brinell (10/3000)	ASTM E10-08 BS EN ISO 6506-1:1999 (Withdrawn)	



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METALS and ALLOYS Cont'd	<u>Mechanical Tests</u> Hardness cont'd: Vickers Rockwell B and C Impact: Izod Charpy V-notch Charpy U-notch (temperatures 77K to ambient) Lateral Expansion Tensile: Ambient Temperature (Forces up to 500 kN) Ambient Temperature to 1173K (Forces up to 500 kN)	BS EN ISO 6507-1:1998 (Withdrawn) BS EN ISO 6508-1:1999 (Withdrawn) BS 131:Part 1:1961(1996) BS EN 10045-1:1990 ASTM E23-07a ASTM A370-09a ASTM E23-07a BS EN 10002-1:2001 ASTM E8/E8M-09 ASTM A370-09a BS EN 10002-5:1992 ASTM E21-09	A	
STEEL and STEEL PRODUCTS	<u>Metallurgical Tests</u> Micrographic determination of Austenite and Ferrite grain size of steels Inclusion content Volume fraction <u>Austenite Spacing</u>	BS EN ISO 643:2003 (Comparison Method) ASTM E112-96 (2004) (Comparison Method) ASTM E45-05 Documented In-House Method CP38 ASTM E562-08 ASTM E112-96(04)e2 DNV RP F112 Draft April 2006		
METALS, ALLOYS and METAL PRODUCTS	<u>Physical Tests</u> Surface texture	BS 1134:Part 1:1988		
END				