SINGAPORE LABORATORY ACCREDITATION SCHEME

Accredited Laboratory SAC-SINGLAS

Schedule

Professional Testing Services Pte Ltd
32 Kian Teck Road
Singapore 628779

Certificate No. : LA-1995-0088-G

Issue No. : 34

Date : 20 April 2026

Expiry of Certificate : 22 April 2030

FIELD OF TESTING : Mechanical Testing

MATERIALS/ PRODUCTS TESTED	TESTS/ PROPERTIES	STANDARD METHODS/ TECHNIQUES
A. METAL & METAL PRODUCT	1. Tension Test (i) Tensile Test on metal plates & tubular sections, reinforcing bars & other metal products at ambient temperature in the range of 0 kN to 2000 kN with controlled strain rate & cross-head movement, including yield & proof stress, ultimate tensile stress & modulus of elasticity	ASTM A370-2024a ASTM B557-2015 (Reapproved 2023) ASTM E8/E8M-2025 ASME IX-2025 *AWS D1.1/D1.1M-2025 *AWS D1.4/D1.4M-2018 *AWS D1.6/D1.6M-2017 *AWS D1.2/D1.2M-2014 *API 1104-2021 (Errata 1 2023) BS EN ISO 6892-1: 2019 MS ISO 6892-1:2017 *NKK Rules Part K Chapter 2.3.1: 2025 AS 1391: 2020 AS 2205-2.1: 2003 AS 2205-2.2: 2003 JIS Z 2241: 2022+AMD1: 2023 ASTM F606/F606M-2025a BS EN ISO 898-1: 2013 (Sect 8.1, 8.2, 8.5) BS EN ISO 898-2: 2022 BS 4190: 2014 BS 3692: 2014 BS 4449: 2005+A3: 2016 SS 560: 2016+A1: 2024 SS 561: 2010+A2: 2022 BS EN ISO 15630-1: 2019 BS EN ISO 15630-2: 2019 MS ISO 15630-1: 2012 MS ISO 15630-2: 2012 * MS 144: 2014 * MS 145: 2014 * MS 146: 2014 SS 2 Part 1: 1999 SS 2 Part 2: 1999 SS 2 Part 3: 1987 * CS 2: 2012 (Rev 6: 2022)

MATERIALS/ PRODUCTS TESTED	TESTS/ PROPERTIES	STANDARD METHODS/ TECHNIQUES
A METAL & METAL PRODUCT	1 (i) Tensile Test on metal plates & tubular sections, reinforcing bars & other metal products at ambient temperature in the range of 0 kN to 2000 kN with controlled strain rate & cross-head movement, including yield & proof stress, ultimate tensile stress & modulus of elasticity	SS 18 Part 1: 1999 SS 18 Part 2: 1970 (1981) *SS 32 Part 1: 1999 *SS 32 Part 2: 1986 ASTM A1034/A1034M-2024 ISO 15835-2: 2018
	(ii) Tensile Test at Elevated Temp. (up to 750ºC) in the range of 0 kN to 250 kN with controlled strain rate &cross-head movement, including yield & proof stress	ASTM E21-2020 BS EN ISO 6892-2: 2018
	(iii) Through Thickness Tensile Test	ASTM A770 / A770M-2003 (Reapproved 2025) BS EN 10164: 2018 *LR-RU-002 Chapter 3, Sect 8: 2025 *ABS Pt. 2, Chapter 1, Sect 1-17: 2026
	(iv) All Weld Tensile Test	BS EN ISO 9018: 2015 *AWS D1.1/D1.1M 2025
	(v) Weld Shear Test	*SS 32 Part 1: 1999 *SS 32 Part 2: 1986 SS 561: 2010+A2: 2022 BS EN ISO 15630-2: 2019 MS ISO 15630-2:2012 * MS 145: 2014
	2. Hardness Tests (i) Vickers Hardness test in the range of 0.3 kgf to 50 kgf	ASTM E92-2023 ASTM A370-2024a ASTM E140-2012b (Reapproved 2019) E1 ASTM E384-2022 BS EN ISO 9015-1: 2011 BS EN ISO 6507-1: 2023 AS 1817. 1: 2003 (R2017) JIS Z 2244-1:2024
	(ii) Rockwell Hardness 'B' and 'C' Scale	ASTM E18-2025 BS EN ISO 6508-1: 2023 JIS Z 2245:2021

MATERIALS/ PRODUCTS TESTED	TESTS/ PROPERTIES	STANDARD METHODS/ TECHNIQUES
A METAL & METAL PRODUCT	2. (iii) Brinell Hardness	ASTM E10-2023 BS EN ISO 6506-1: 2014 AS 1816.1: 2007 (R2017) JIS Z 2243-1:2018
	(iv) Knoop Hardness	ASTM E384-2022 BS EN ISO 4545-1: 2023
	3. Compression Test (i) Compression strength, up to 600 kN in loading	ASTM E9-2019 (Reapproved 2025)^{E1}
	4. Shear Test	ASTM B565-2020 *SS 32 Part 1: 1999 ASME II Part A-2025, SA 263-265 ASTM A263-2012 (Reapproved 2019) ASTM A264-2012 (Reapproved 2019) ASTM A265-2012 (Reapproved 2019)
	5. Impact Test (i) Charpy V-notch Impact tests from ambient temperature down to -115^{0}C & -196^{0}C	ASTM A370-2024a *AWS D1.1/D1.1M 2025 ASME IX-2025 ASTM E23-2025 BS EN ISO 148-1: 2016 MS ISO 148-1:2008 AS 1544.2: 2003 (R2017)
	6. Bend Test / Roller Bend test	ASTM A370-2024a AWS D1.1/D1.1M-2025 ASME IX-2025 *API 1104-2021 (Errata 1 2023) BS EN ISO 5173: 2023 ASTM E190-2021 ASTM E290-2022 AS/NZS 2205-3.1: 2024 AS 2205-3.3: 2003 AWS D1.6/D1.6M-2017 AWS D1.2/D1.2M-2014 AS 1085.20: 2020 AWS D1.3/D1.3M: 2018
	7. Bend Test / Rebend Test	SS 2 Part 1: 1999 SS 2 Part 2: 1999

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A METAL & METAL PRODUCT	7. Bend Test / Rebend Test	SS 2 Part 3: 1987 *SS 32 Part 1: 1999 *SS 32 Part 2: 1986 BS 4449: 2005+A3: 2016 *SS 18 Part 1: 1999 SS 560: 2016+A1: 2024 SS 561: 2010+A2: 2022 BS EN ISO 15630-1: 2019 BS EN ISO 15630-2: 2019 MS ISO 15630-1 :2012 MS ISO 15630-2: 2012 * MS 144: 2014 * MS 145: 2014 * MS 146: 2014 * CS 2: 2012 (Rev 6: 2022)
	8. Fracture Test	*AWS D1.1/D1.1M-2025 ASME IX-2025 BS EN ISO 9017: 2018 AWS D1.6/D1.6M-2017 AWS D1.2/D1.2M-2014
	9. Flattening Test	ASTM A370-2024a *ABS Pt. 2, Chapter 3, Sect 5-19: 2026 *LR-RU-002 Chapter 2, Sect 4.2: 2025 API 5L: 2018 (Errata 1 2018) BS EN ISO 8492: 2013 JIS G 3444:2025
	10. Flaring/Flanging Test (up to outside diameter of 2 inches)	ASTM A370-2024a *ABS Pt. 2, Chapter 3, Sect 5-23 & 25: 2026 *LR-RU-002 Chapter 2, Sect 4.3 & 4.4: 2025 BS EN ISO 8493: 2004 BS EN ISO 8494: 2013
	11. Nick-Break Test	ASTM A370-2024a *API 1104-2021 (Errata 1 2023)
	12. Macro-etching metals & alloys Macroscopic examination on welds	ASTM E340-2023 ASTM E381-2022 ASME IX-2025 *AWS D1.1/D1-1M-2025 *API 1104-2021 (Errata 1 2023) BS EN ISO 17639: 2022 AS 1085.20: 2020 AS/NZS 2205.5.1: 2024

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A METAL & METAL PRODUCT	13. Micro-etching metals & alloys Microscopic Examination	ASTM E407-2023 ASTM E3-2011 (Reapproved 2025)
	14. Determination of Metal Composition	
	(i) Carbon and low-alloy steel Elements: Al, B, C, Cr, Co, Cu, Mn, Mo, N, Ni, Nb, P, Si, S, Sn, Ti, V, W	ASTM A751-2025 ASTM E415-2021 AS 1085.20: 2020 BS EN 10351: 2011 CR 10320: 2004 * MS ISO 15630-1: 2012 * MS ISO 15630-2: 2012 * MS 144: 2014 * MS 145: 2014 * MS 146: 2014 * CS 2: 2012 (Rev 6: 2022)
	(ii) Stainless Steels Elements: Cr, Ni, Mo, Mn, Si, N, Cu, C, P, S	ASTM A751-2025 ASTM E1086-2022
	(iii) Steel, Stainless Steel, Iron, Nickel & Cobalt Alloys Elements: C, S, N, O	ASTM E1019-2024
	(iv) Nickel & Nickel Alloys Elements: Al, B, C, Ca, Cr, Co, Cu, Fe, Mg, Mn, Mo, Ni, Nb, P, S, Si, Sn, Ti, Ta, W, V, Zr	ASTM E2594-2020 ASTM E3047-2022
	(v) Titanium & Titanium Alloys Elements: Al, B, Cr, Co, Cu, Fe, Mn, Mo, Ni, Nb, Pd, Ru, Si, Sn, Ta, W, V, Y, Zr	ASTM E2371-2021a
	(vi) Titanium & Titanium Alloys Elements: H	ASTM E1447-2022
	(vii) Titanium & Titanium Alloys Elements: O, N	ASTM E1409-2013 (Reapproved 2021)

MATERIALS/ PRODUCTS TESTED	TESTS/ PROPERTIES	STANDARD METHODS/ TECHNIQUES
A METAL & METAL PRODUCT	(viii) Aluminium & Aluminium Alloys Elements: Ag, As, B, Ba, Be, Bi, Ca, Cd, Co, Cr, Cu, Fe, Ga, Li, Mg, Mn, Mo, Na, Ni, P, Pb, Sb, Sc, Si, Sn, Sr, Ti, Tl, V, Zn, Zr	ASTM E1251-2025 ASTM E3061-2024
	(ix) Refractory & Reactive Metals and their Alloys Elements: C	ASTM E1941-2010 (Reapproved 2024)
	(x) Positive Material Identification	ASTM A751-2025 ASTM E1476-2004 (Reapproved 2022)
	(xi) Steel Elements: ~~C, S~~ ~~N~~ Mn Ni Cu Mo	ISO 10278: 1995 ISO 13898-2: 1997 ISO 13898-3: 1997 ISO/TS 13899-1: 2004
	(xii) Copper & Copper Alloy Elements: Ag, Al, As, B, Be, Bi, C, Cd, Co, Cr, Cu, Fe, Mg, Mn, Ni, P, Pb, S, Sb, Se, Si, Sn, Te, Ti, Zn, Zr	BS EN 15079: 2015
	Elements: Ag, Al, As, B, Be, Bi, Cd, Co, Cr, Cu, Fe, Mg, Mn, Ni, P, Pb, Sb, Se, Si, Sn, Te, Ti, Zn, Zr	BS EN 15605: 2010
	15. Portable Hardness Test	ASTM E110-2014 (R2023) ASTM A956/A956M-2022 ASTM E10-2023
	16. Pitting Corrosion	ASTM G48-2025 Method A, Method B
	17. Detecting Susceptibility to Intergranular Attack in Austenitic Stainless Steels	ASTM A262-2015 (Reapproved 2021) Practice A (ii), B (iii), C (iv) & E (i)
	18. Detecting susceptibility to Intergranular Attack in Wrought, Nickel-Rich, Chromium – Bearing Alloys	ASTM G28-2024

MATERIALS/ PRODUCTS TESTED	TESTS/ PROPERTIES	STANDARD METHODS/ TECHNIQUES
A METAL & METAL PRODUCT	19. Determining Volume Fraction by Systematic Manual Point Count	ASTM E562-2019^{E1}
	20. Fracture Mechanics Toughness Test, Crack Tip Opening Displacement (CTOD) Test	BS 7448-1: 1991 BS 7448-2: 1997
	(i) (SENB) Single Edge Notched Bend	ASTM A370-2024a BS EN ISO 15653: 2018 AS 2205.7.3: 2003 BS ISO 12135: 2021
	(ii) (SENT) Single Edge Notched Tension	BS 8571: 2018 DNV RP F108: 2006 Section 2 DNVGL RP F108: 2017
	21. Hydrogen Induced Cracking (HIC) Test	NACE Standard TM0284-2016 item no. 21215
	22. (SSCC) Test	ASTM G39-1999 (Reapproved 2021) ASTM A370-2024a BS EN ISO 7539-1: 2012 BS EN ISO 7539-2: 1995 NACE Standard TM0177-2024 (Methods A, B & C)
	23. Salt Spray Test	ASTM B117-2026
	24. Fatigue Test	MS 146: 2014 BS 4449: 2005 + A3: 2016 SS 560: 2016+A1: 2024 BS EN ISO 15630-1: 2019 AS 1085.20: 2020 MS ISO 15630-1: 2012 ISO 15835-2: 2018 CS 2: 2012 (Rev 6: 2022)
	25. Relaxation Test	JIS G 3137: 2020
	26. Detecting detrimental intermetallic phase in duplex austenitic/ferrite stainless steels	ASTM A923-2025 Method A(ii) & C(i) only

MATERIALS/ PRODUCTS TESTED	TESTS/ PROPERTIES	STANDARD METHODS/ TECHNIQUES
A METALS AND METAL PRODUCTS	27. Determining average grain size	ASTM E112-2025
	28. Determination of Diffusible Hydrogen Content of Weld Metal, via Gas Chromatography, Produced by Arc Welding	AWS A4.3-2025 BS EN ISO 3690: 2018
	29. Surface Geometry and Tolerances: Determination of the relative rib or indentation area	BS EN ISO 15630-1: 2019 MS ISO 15630-1: 2012 * MS 144: 2014 * MS 145: 2014 * MS 146: 2014 AS/NZS 4671:2019 CS 2: 2012 (Rev 6: 2022)
	30. Dimensions, Mass per Metre and Tolerances: Determination of deviation from Nominal mass per metre	BS EN ISO 15630-1: 2019 MS ISO 15630-1: 2012 * MS 144: 2014 * MS 145: 2014 * MS 146: 2014 AS/NZS 4671:2019 CS 2: 2012 (Rev 6: 2022)
	31. Particle Size Distribution by Light Scattering (dry dispersions only)	ASTM B822-2025
	32. Slip Test of Mechanical Splices for Steel Reinforcing Bars	ASTM A1034/A1034M-2024 ISO 15835-2: 2018
	33. Determination of Density for Powder Metallurgy Materials and Products	ASTM B311-2022
	34. Sectioning Test	ASME IX-2025

(*) : Specification

Approved Signatories

1.	Mr. Tee Chng Kin	-	All accredited tests
2.	Mr. Seto Yuen Hee	-	item A1 – A12, A29, A30, A32, A34
3.	Mr. Ong King Liong	-	item A14 (i), (ii), (iv), (viii), (x), (xii), A15, A28
4.	Mr. Johnson Lee Gao Shan	-	item A12, A13, A16 – A19, A21 – A23 & A26, A27
5.	Mr. Tang Tung Yieng	-	item A14 (i), (ii), (iv), (x), A15
6.	Mr. Luke Joon Shiong	-	item A14 (i), (ii), (iv), (x), A15
7.	Mr. Lee Chen Heng	-	item A1, A2, A5, A6, A12, A20 (i), A24, A16, A17 (i), (iii), (iv), A18, A19
8.	Ms. Yip Pooi Chee	-	item A14 except A14(x), A28, A31, A33
9.	Dr. Yeoh Yong Chen	-	item A1, A2, A5, A6, A7, A12, A20 (i), A24, A34, A3, A4, A8, A9 – A11, A29 & A30, A32 & A14 (i), Iii), (iv), (viii), (xii)
10.	Mr. Chia Jin Hong	-	item A13, A16, A17(ii), A26

Note :

This laboratory is accredited in accordance with the recognised International Standard ISO/IEC 17025:2017. A laboratory's fulfilment of the requirements of ISO/IEC 17025:2017 means the laboratory meets both the technical competence requirements and **management system requirements** that are necessary for it to consistently deliver technically valid test results. The **management system requirements** in ISO/IEC 17025:2017 are written in language relevant to laboratory operations and operate generally in accordance with the principles of ISO 9001.