

Schedule

CAST Laboratories Pte Ltd
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Certificate No. : LA-2000-0182-G

Issue No. : 20

Date : 27 April 2023

Expiry date : 22 January 2024

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FIELD OF TESTING: Mechanical Testing

MATERIALS / PRODUCTS TESTED	TEST / PROPERTIES	STANDARD METHODS / TECHNIQUES	APPROVED SIGNATORY
A. Metallic Materials / Metals	1. Tensile Test	JIS Z 2241: 2011 ASTM A370 - 18,21 BS EN ISO 6892:1: 2016, 2019 BS EN ISO 4136: 2022 ASME IX - 2021(Article 1) AWS D1.1/D1.1M: 2020	CTJ/TBH/BL
	2. Bend Test	ASTM A370 - 2021 ASME IX - 2021(Article 1) AWS D1.1/D1.1M: 2020 BS EN ISO 5173:2010+A1: 2011	TBH/BL
	3. Macro-etching metals & alloys macroscopic examination on welds	ASME IX – 2021(Article 1) AWS D1.1/D1.1M: 2020 BS EN ISO 17639: 2022	TBH/BL
	4. Hardness Test (i) Vickers Hardness Test	ASTM E92 - 2017 BS EN ISO 6507-1: 2018 BS EN ISO 9015-1: 2011	TBH/BL
	(ii) Rockwell Hardness ("B" & "C") Test	BS EN ISO 6508-1: 2015, 2016 ASTM E18, 17e1, 22	CTJ/TBH/BL
5. V Notch Charpy Impact	ASTM A370 -18, 21 ASTM E23 - 16b, 18 BS EN ISO 148-1: 2010, 2016	CTJ/TBH/BL	

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B. Steel Reinforcement Bar	1. Tensile test 2. Bend test 3. Rebend test	SS2 : pt 1 :1999 SS2 : pt 2 :1999 SS 2: pt 3 : 1987 BS 4449: 2005 +A3: 2016 BS EN ISO 6892:1: 2016, 2019 BS EN ISO 15630-1: 2010, 2019 SS 560: 2010, 2016	CTJ/TBH/BL
	4. Dimensional Measurement / Surface geometry	BS 4449: 2005 +A3: 2016 SS 560: 2016 BS EN ISO 15630-1: 2010, 2019	CTJ/TBH/BL
C. Welded Steel Fabric	1. Tensile test 2. Bend test 3. Rebend test 4. Reverse bend test 5. Weld shear test 6. Strength of joint For welded Fabric	SS18: pt1: 1999 SS 18: pt2: 1970 (1981) SS 32: pt 1: 1999 SS 32: pt 2: 1986 SS 561: 2010 BS EN ISO 15630-1: 2010, 2019 BS EN ISO 15630-2: 2010, 2019 BS EN ISO 6892-1: 2016, 2019	CTJ/TBH/BL
D. Seven wire prestressing strand/ high tensile steel wire/prestressing Steel	1. Tensile test (Breaking load)	BS 5896: 1980, 2012 ASTM A416/416M - 16, 17a, 18 (exclude Table 2 - Yield Strength) SS 475:pt 1 & 4: 2000 BS EN ISO 6892-1: 2016, 2019 BS EN ISO 15630-3: 2010, 2019	CTJ/TBH
	1. Tensile Strength	BS 5896: 1980, 2012 BS EN ISO 15630-3: 2010, 2019 BS EN ISO 6892-1: 2016, 2019 ASTM A416/A416M: 16, 17a, 18	CTJ/TBH
E. Reinforcement steel bar with coupler	1. Tensile Load & Permanent Set	MEC-S029-RO-Jan17 (BS 8110-1: 1997) BS EN 1992-1-1:2004+A1:2014	CTJ/TBH/BL
	2. Tensile Test & Slip Test (Permanent Elongation)	ISO 15835-2: 2009, 2018	CTJ/TBH/BL
F. Bolts	1. Tensile Test Full Size Bolts	BS EN ISO 898 - 1 : 2009, 2013 (Clause 9.2)	CTJ/TBH
	2. Single Shear Test	ASTM F606/F606M – 16, 21 CL 3.8	CTJ/TBH

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G. Nuts	1. Proof Load	BS EN ISO 898 - 2 : 2012, 2022 BS 3692 : 2001, 2014 BS 4190 : 2014	CTJ/TBH
H. Fiber reinforcement polymer matrix composite bars / GFRP bar	1. Tensile test	In-house Developed Procedure MEC-S031-R1-May18	CTJ/TBH
I. Metal formwork	1. Tensile test 2. Dimension test	JIS Z 2241 : 2011 In-house Developed Procedure MEC-S032-R0-Mar18	CTJ/BL/TBH

Approved signatories

Mr Chai They Jhan For all tests except A2 to A5(i)
Mr Tee Boon Huat For all tests
Mr Benedict Lim For tests A, B, C, E, & I

Note:

This laboratory is accredited in accordance with the recognised International Standard ISO/IEC 17025:2005. A laboratory's fulfilment of the requirements of ISO/IEC 17025:2005 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 17025:2005 (Section 4) are written in language relevant to laboratory operations and meet the principles of ISO 9001:2008 **Quality Management Systems — Requirements** and are aligned with its pertinent requirements.