

Schedule

CAST Laboratories Pte Ltd
17 Tuas Ave 8
Singapore 639232

Certificate No. : LA-2000-0182-G
Issue No. : 17
Date : 03 December 2019
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FIELD OF TESTING: Mechanical Testing

MATERIALS / PRODUCTS TESTED	TEST / PROPERTIES MEASUREMENTS / RANGE OF MEASUREMENT	STANDARD METHODS / TECHNIQUES	APPROVED SIGNATORY
A. Metallic Materials / structural steel	1. Tensile Test	BS EN 10002:pt1:2001 JIS Z 2241 : 2011 ASTM A370 -16,17a,18 SS 456 : 1999 BS EN ISO 6892:1:2009,2016	CTJ/TMC/DS/HM/TBH
B. Steel Reinforcement Bar	1. Tensile test	SS2 : 1987	CTJ/TMC/DS/HM/TBH/BL
	2. Bend test	SS2 : pt 1 :1999	
3. Rebend test	SS2 : pt 2 :1999 SS 2: pt 3 : 1987 SS 456 : 1999 SS 427:1998 BS 4449:2005 +A2:2009 BS 4449: 2005 +A3: 2016 BS EN 10002:pt 1:2001 BS EN ISO 6892:1:2009,2016 BS EN ISO 15630-1: 2002, 2010 SS 560: 2010, 2016		
	4. Dimensional Measurement / Surface geometry	BS 4449: 2005 +A3: 2016 SS 560: 2016 BS EN 15630-1: 2010, 2019	CTJ/TMC/DS/HM/TBH/BL

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C. Welded Steel Fabric	<ol style="list-style-type: none"> 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 427: 1998 SS 456: 1999 SS 561: 2010 BS EN ISO 15630-1: 2010 BS EN ISO 15630-2: 2010 BS EN ISO 6892-1 : 2009, 2016	CTJ/TMC/DS/HM/TBH/BL
D. Seven wire prestressing strand/ high tensile steel wire/prestressing Steel	<ol style="list-style-type: none"> 1. Tensile test (Breaking load) 2. Tensile Strength 	BS 5896: 1980, 2012 ASTM A416/416M-12a, 16, 17a (exclude Table 2 - Yield Strength) SS 475:pt 1 & 4 :2000 BS EN 10002-1 : 2001 BS EN ISO 6892-1 : 2009, 2016 BS EN ISO 15630-3 : 2010 BS 5896: 1980, 2012 BS EN ISO 15630-3: 2010 BS EN ISO 6892-1: 2009, 2016 ASTM A416/A416M: 16, 17a	CTJ/TMC/DS/HM/TBH CTJ/TMC/DS/TBH
E. Reinforcement steel bar with coupler	<ol style="list-style-type: none"> 1. Tensile Load & Permanent Set 2. Tensile Test & Slip Test (Permanent Elongation) 	MEC-S029-RO-Jan17 (BS 8110-1: 1997) BS EN 1992-1-1:2004+A1:2014 ISO 15835-2: 2009, 2018	CTJ/TMC/DS/HM/TBH/BL CTJ/TMC/DS/HM/TBH/BL

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F. Metals	1. V Notch Charpy Impact	ASTM A370-16,17a,18 BS EN ISO 10045-1:1990 ASTM E23 - 12c, 16b BS EN ISO 148-1: 2010, 2016	CTJ/TMC/DS/TBH
G. Ferrous Materials	1. Rockwell Hardness ("B" & "C")	BS EN ISO 6508 -1:2005, 2015, 2016 ASTM E18-16, 17e1	CTJ/TMC/DS/TBH
H. Bolts	1. Tensile Test Full Size Bolts 2. Single Shear Test	BS EN ISO 898 - 1 : 2009, 2013 (Clause 9.2) ASTM F606/F606M - 16 CL 3.8	CTJ/TMC/DS/TBH
I. Nuts	1. Proof Load	BS EN ISO 898 - 2 : 2012 BS 3692 : 2001, 2014	CTJ/TMC/DS/TBH
J. Fiber reinforcement polymer matrix composite bars / GFRP bar	1. Tensile test	In-house Developed Procedure MEC-S031-R1-Mar18	CTJ/TMC/DS/TBH
K. Metal formwork	1. Tensile test 2. Dimension test	JIS Z 2241 : 2011 In-house Developed Procedure MEC-S032-RO-Mar18	CTJ/DS/BL/TBH

Approved signatories

Mr Chai They Jhan	For all tests
Mr Subramanian D	For all tests
Mr Tee Boon Huat	For all tests
Mr Tian Mong Ching	For all tests (except K)
Mr Hamidon Bin Mostaffar	For all tests (except F to K)
Mr Benedict Lim	For tests B, C, E & K

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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.