

Schedule

CAST Laboratories Pte Ltd
17 Tuas Ave 8
Singapore 639232

Certificate No. : LA-1998-0142-D

Issue No. : 26

Date : 11 August 2021

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FIELD OF TESTING : Non-Destructive Testing

NDT TECHNIQUES	MATERIALS /PRODUCTS TESTED	STANDARD METHODS/ TECHNIQUES/EQUIPMENT
<p>1. RADIOGRAPHIC TESTING (Portable)</p> <p>a) Gamma Ray</p> <p>b) X-ray</p>	<p>All materials/products & Weldments, Casting and Forging under the General Standards</p>	<p><u>General Standards</u></p> <p>ASME Sec. V, Art.1, 2 & 22: 2019Ed API 1104 : 2013Ed Add 2016 ASTM E 94 : 2019Ed ASTM E 999 : 2019Ed BS EN ISO 17636-1 :2013 BS EN ISO 17636-2:2013 AWS D1.1/D1.1M: 2020Ed.</p> <p><u>Specific Standards</u></p> <p>ASME Section VIII Div 1 : 2019Ed. ASME Section VIII Div 2 : 2019Ed. ASME Sec. I : 2019Ed. ASME Sec. IX : 2019Ed. ASME B31.1 : 2018 ASME B31.3 : 2018 ASME B31.8 : 2014Ed. API 1104 : 2013Ed. Add 2016 API 653 : 2009Ed. Add 2016 API 620 : 2013Ed. Add 2014 AWS D1.1 : 2020Ed. BS EN ISO 10675-1:2013 API 650 : 2013Ed Add 2018</p>

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<p>2. ULTRASONIC TESTING</p> <p>Contact Method/ Pulse Echo Techniques</p> <p>a) Flaw Detection</p> <p>b) Ultrasonic Thickness Gauging (UTG)</p>	<p>All Materials / Products & Weldments, Casting, Forging and Rolling under the General Standards.</p>	<p><u>General Standards</u> ASME Sec. V, Art 1, 4, 5 & 23: 2019Ed AWS D1.1/D1.1M : 2020Ed. API 1104: 2013Ed. Add 2016 ASTM E-164 : 2015 Ed ASTM E-114 : 2015 Ed ASTM E-797 : 2019Ed BS EN ISO 16810: 2014 Ed BS EN ISO 17640 : 2018Ed BS EN ISO 17635 : 2016</p> <p><u>Specific Standards</u> ASME Section VIII Div 1 : 2019Ed. ASME Section VIII Div 2 : 2019Ed. ASME Sec.I: 2019Ed. ASME Sec. IX: 2019Ed. ASME B31.1: 2018 ASME B31.3: 2018 ASME B31.8: 2014Ed. AWS D1.1: 2020Ed. API 1104: 2013Ed. Add 2016 API 653: 2009Ed. Add 2016 API 620: 2013Ed. Add 2014 BS EN ISO 11666: 2010Ed. BS EN 10160: 1999Ed BS EN 10228-3 : 2016Ed BS EN 10228-4 : 2016Ed. API 650: 2013Ed Add 2018 ASTM A435/A435M: 2012 ASTM A578/A578M: 2012Ed. ASTM E797: 2015Ed.</p>
<p>3. MAGNETIC PARTICLE TESTING</p> <p>Visible and Florescent Techniques</p>	<p>Ferromagnetic Materials, All Materials / Products & Weldments, Castings & Forgings covered under the General Standards</p>	<p><u>General Standards</u> ASME Sec. V, Art.1, 7 & 25: 2019Ed AWS D1.1 /D1.1M: 2020Ed. API 1104: 2013 Ed Add 2016Ed. ASTM E-709: 2019Ed BS EN ISO 9934-1: 2001Ed. BS EN ISO17638 : 2016 BS EN ISO17635 : 2016</p>

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<p>4. LIQUID PENETRANT TESTING</p> <p>Solvent Removable Method - Visible Dye</p>	<p>Non Porous Materials / All Materials / Products & Weldments under the General Standards</p>	<p><u>Specific Standards</u> ASME Section VIII Div 1 : 2019Ed. ASME Section VIII Div 2 : 2019Ed. ASME Sec.I : 2019Ed. ASME Sec. IX : 2019Ed. ASME B31.1 : 2018 ASME B31.3 : 2018 ASME B31.8 : 2014Ed. API 1104 : 2013Ed.Add 2016 API 653 : 2009Ed. Add 2 2016 API 620 : 2013Ed.Add 1 2014 BS EN ISO 23278 : 2009Ed. API 650 : 2013Ed Add 3 2018</p> <p><u>General Standards</u> ASME Sec.V, Art.6 & 24 : 2019Ed AWS D1.1/D1.1M : 2020Ed. API 1104 : 2013Ed.Add 2 2016 ASTM E-165 : 2019Ed ASTM E-1220 : 2010Ed. ASTM E-1417 : 2013Ed BS EN ISO 3452-1 : 2013Ed BS EN ISO 17635 : 2016</p> <p><u>Specific Standards</u> ASME Section VIII Div 1 : 2019Ed. ASME Section VIII Div 2 : 2019Ed. ASME Sec.I : 2019Ed. ASME Sec. IX : 2019Ed. ASME B31.1 : 2018 ASME B31.3 : 2018 ASME B31.8 : 2014Ed. AWS D1.1/D1.1M : 2020Ed. API 1104 : 2013Ed.Add 2 2016 API 653 : 2009Ed. Add 2 2016 API 620 : 2013Ed. Add 1 2014 BS EN ISO 23277 : 2015 API 650 : 2013Ed Add 3 2018</p>

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<p>5. POSITIVE MATERIAL IDENTIFICATION (PMI)</p> <p>a) X-ray Fluorescent Analysis (XRF)</p> <p>b) Optical Emission Spectroscopy (OES)</p>	<p>All the Materials/Products & Weldments covered the general standard</p>	<p><u>General Standard</u> ASTM E-1085 : 2016Ed ASME Sec II : 2019Ed ASME Sec I : 2019Ed API 650 2013Ed Add 3 2018</p>
<p>6. TIME OF FLIGHT DIFFRACTION (TOFD)</p>	<p>All Materials / Weldments under the General Standards</p>	<p><u>General Standards</u> ASME Sec.V: 2019Ed</p> <p><u>Specific Standards</u> ASME Section VIII Div 1 : 2019Ed. ASME Section VIII Div 2 : 2019Ed. ASME Sec .I : 2019Ed. ASME Sec. IX : 2019Ed. ASME B31.1 : 2018Ed. ASME B31.3 : 2018Ed. ASME B31.8 : 2014Ed. ASTM E2373 (2014)</p>
<p>7. PHASED ARRAY ULTRASONIC TESTING (PAUT)</p> <p>a) Welds</p> <p>b) Corrosion Mapping</p>	<p>All Materials / Weldments under The General Standards</p>	<p><u>General Standards</u> ASME Sec. V: 2019Ed</p> <p><u>Specific Standards</u> <u>ASME Section VIII Div 1 : 2019Ed.</u> <u>ASME Section VIII Div 2 : 2019Ed.</u> ASME Sec. I : 2019Ed. ASME Sec. IX : 2019Ed. ASME B31.1 : 2018Ed. ASME B31.3 : 2018Ed. ASME B31.8 : 2014Ed. API 650 2013Ed Add 3 2018 API 653 2009Ed Add 3 2016 API 620 2013Ed Add 3 2014</p>

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Approved Signatories

- Mr Tai Jan Lean - MT, PT, UT, RT, PMI (XRF) and PAUT (corrosion mapping)
Mr Munagala Mahesh Reddy - UT, PAUT, TOFD, RT, PMI (XRF & OES), MT and PT
Ms Selvaraj Sasikala - PMI (XRF)
Mr Natarajan Arulnanthi - PMI (XRF & OES)

Note :

This laboratory is accredited in accordance with the recognised International Standard ISO/IEC 17025. A laboratory's fulfilment of the requirements of ISO/IEC 17025 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 are written in language relevant to laboratory operations and operate generally in accordance with the principles of ISO 9001.