

Schedule

CAST Laboratories Pte Ltd
17 Tuas Ave 8
Singapore 639232

Certificate No. : LA-1998-0142-D
Issue No. : 28
Date : 8 January 2024
Expiry Date : 13 September 2025
Page : 1 of 4

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: 2021Ed API 1104 : 22ND Ed. July 2021 ASTM E 94 : 2021Ed ASTM E 999 : 2021Ed BS EN ISO 17636-1 :2013 AWS D1.1/D1.1M: 2020Ed</p> <p><u>Specific Standards</u></p> <p>ASME Section VIII Div 1 : 2021Ed ASME Section VIII Div 2 : 2021Ed ASME Sec. I : 2021Ed ASME Sec. IX : 2021Ed ASME B31.1 : 2022 Ed ASME B31.3 : 2022 Ed ASME B31.8 : 2022 Ed API 653 : 2009Ed. Add 2016 API 620 : 2013Ed. Add 2014 AWS D1.1: 2020Ed BS EN ISO 10675-1: 2016 API 650 : 2020 Ed</p>
<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></p> <p>ASME Sec. V, Art 1, 4, 5 & 23: 2021Ed AWS D1.1/D1.1M: 2020Ed API 1104: 22ND Ed. July 2021 ASTM E-164 : 2015 Ed ASTM E-114 : 2015 Ed ASTM E-797 : 2021Ed BS EN ISO 16810: 2014 Ed BS EN ISO 17640 : 2017Ed BS EN ISO 17635 : 2016</p>

Schedule



Certificate No. : LA-1998-0142-D

Issue No. : 28

Date : 8 January 2024

Page : 2 of 4

NDT TECHNIQUES	MATERIALS /PRODUCTS TESTED	STANDARD METHODS/ TECHNIQUES/EQUIPMENT
<p>3. MAGNETIC PARTICLE TESTING Visible and Florescent Techniques</p>	<p>Ferromagnetic Materials, All Materials / Products & Weldments, Castings & Forgings covered under the General Standards</p>	<p><u>Specific Standards</u> ASME Section VIII Div 1 : 2021Ed ASME Section VIII Div 2 : 2021Ed ASME Sec. I: 2021Ed ASME Sec. IX: 2021Ed ASME B31.1: 2022 Ed ASME B31.3: 2022 Ed ASME B31.8: 2022 Ed AWS D1.1: 2020Ed API 1104: 22ND Ed. July 2021 API 653: 2009Ed. Add 2016 API 620: 2013Ed. Add 2014 BS EN ISO 11666: 2018Ed BS EN 10160: 1999Ed BS EN 10228-3 : 2016Ed API 650: 2020 Ed ASTM A435/A435M: 2021Ed ASTM A578/A578M: 2021Ed ASTM E797: 2021Ed</p> <p><u>General Standards</u> ASME Sec. V, Art.1, 7 & 25: 2021Ed AWS D1.1 /D1.1M: 2020Ed API 1104: 22ND Ed. July 2021 ASTM E-709: 2021Ed BS EN ISO 9934-1: 2001Ed BS EN ISO17638 : 2016 BS EN ISO17635 : 2016</p> <p><u>Specific Standards</u> ASME Section VIII Div 1 : 2021Ed ASME Section VIII Div 2 : 2021Ed ASME Sec. I : 2021Ed ASME Sec. IX : 2021Ed ASME B31.1 : 2022 Ed ASME B31.3 : 2022 Ed ASME B31.8 : 2022 Ed API 1104 : 22ND Ed. July 2021 API 653 : 2009Ed. Add 2 2016 API 620 : 2013Ed. Add 1 2014 BS EN ISO 23278 : 2015Ed API 650 : 2020 Ed</p>

Schedule



Certificate No. : LA-1998-0142-D

Issue No. : 28

Date : 8 January 2024

Page : 3 of 4

NDT TECHNIQUES	MATERIALS /PRODUCTS TESTED	STANDARD METHODS/ TECHNIQUES/EQUIPMENT
<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>General Standards</u> ASME Sec. V, Art.6 & 24 : 2021Ed AWS D1.1/D1.1M : 2020Ed API 1104 : 22ND Ed. July 2021 ASTM E-165 : 2021Ed 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 : 2021Ed ASME Section VIII Div 2 : 2021Ed ASME Sec. I : 2021Ed ASME Sec. IX : 2021Ed ASME B31.1 : 2022 Ed ASME B31.3 : 2022 Ed ASME B31.8 : 2022 Ed AWS D1.1/D1.1M : 2020Ed API 1104 : 22ND Ed. July 2021 API 653 : 2009Ed. Add 2 2016 API 620 : 2013Ed. Add 1 2014 BS EN ISO 23277 : 2015 API 650 : 2020 Ed</p>
<p>5. POSITIVE MATERIAL IDENTIFICATION (PMI)</p> <p>a) X-ray Fluorescent Analysis (XRF) 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 : 2021Ed ASME Sec I : 2021Ed 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: 2021Ed</p> <p><u>Specific Standards</u> ASME Section VIII Div 1 : 2021Ed ASME Section VIII Div 2 : 2021Ed ASME Sec. I : 2021Ed ASME Sec. IX : 2021Ed ASME B31.1 : 2022 Ed ASME B31.3 : 2022 Ed ASME B31.8 : 2022 Ed ASTM E2373 (2014) API 653 2014 Ed Addendum 3: 2020 API 620 2013 Ed Addendum 2 :2018</p>

Schedule



Certificate No. : LA-1998-0142-D

Issue No. : 28

Date : 8 January 2024

Page : 4 of 4

NDT TECHNIQUES	MATERIALS /PRODUCTS TESTED	STANDARD METHODS/ TECHNIQUES/EQUIPMENT
7. PHASED ARRAY ULTRASONIC TESTING (PAUT) a) Welds b) Corrosion Mapping	All Materials / Weldments under the General Standards	<u>General Standards</u> ASME Sec. V: 2021Ed <u>Specific Standards</u> ASME Section VIII Div 1 : 2021Ed ASME Section VIII Div 2 : 2021Ed ASME Sec. I : 2021Ed ASME Sec. IX : 2021Ed ASME B31.1 : 2022 Ed ASME B31.3 : 2022 Ed ASME B31.8 : 2022 Ed API 650 : 2020 Ed API 653 2014 Ed Addendum 3: 2020 API 620 2013 Ed Addendum 2 :2018

Approved Signatories

Mr Tai Jan Lean	- MT, PT, UT, RT, PMI (XRF) ,PAUT (corrosion mapping)
Mr Munagala Mahesh Reddy	- UT, PAUT, TOFD, RT, PMI, MT & PT
Ms Selvaraj Sasikala	- PMI (XRF)
Mr Lee Siong Hui	- UT (Flaw Detection only)

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.