

Ref. No : 09T013/0757



## CERTIFICATE OF LABORATORY ACCREDITATION

This is to certify that

**Testing Laboratory**  
**Professional Testing Company Limited**  
**55/6-7, Moo 4, Huai Kapi, Mueang Chon Buri, Chon Buri**

has successfully undergone assessment under  
the Thai Laboratory Accreditation Scheme (TLAS)  
Thai Industrial Standards Institute  
for meeting its criteria of competence, which are in accordance with  
General requirements for the competence of testing and calibration laboratories

TIS 17025 - 2548 (2005)

ISO/IEC 17025 : 2005

Accreditation No. TESTING 0250

The scope of accreditation is as annexed hereto.

Date of Issue : 20<sup>th</sup> April 2009

Valid until : 19<sup>th</sup> April 2012

Signature :

A handwritten signature in blue ink, appearing to read 'Pairoj Sanyadechakul', written over a horizontal line.

(Pairoj Sanyadechakul)

Deputy Permanent Secretary for Industry  
Chairman, Ministerial Cluster  
for Industrial and Entrepreneurial Promotion  
Chairman of Industrial Product Standards Council

Initial Date of Issue : 20<sup>th</sup> April 2009

Thai Laboratory Accreditation Scheme, Thai Industrial Standards Institute, Ministry of Industry

## Scope of Accreditation for Testing

**Laboratory Name** : Professional Testing Company Limited  
**Premises** : 55/6-7 Moo 4, Huai Kapi, Mueang Chon Buri, Chon Buri  
**Accreditation No.** : TESTING 0250  
**Laboratory Status** :  Permanent  Site  Temporary  Mobile

Item/Product Tested	Specific Test/ Range of Measurement	Standard/Test Method/ Technique Used
1. Iron and steel	Mechanical testing - Tension test <ul style="list-style-type: none"> <li>● Tensile strength</li> <li>● Yield strength</li> <li>● Elongation</li> </ul> Load 100 kN to 900 kN  ● Tensile strength ● Yield stress ● Elongation Load 100 kN to 900 kN  - Vickers hardness test <ul style="list-style-type: none"> <li>● Scale HV5 and HV10</li> </ul>	- ASTM A370-05 - ASTM A370-09a <sup>E1</sup> - ASTM E8M-04 - ASTM E8/E8M-09 - ASME SA370-07, section II, part A - BS EN 10002-1:2001 - ISO 6892:1998 - ISO 6892-1:2009 Determined yield strength by autographic diagram method  - JIS Z 2241-1998  - ASTM E92-82 (Reapproved 2003) <sup>E2</sup>

## Scope of Accreditation for Testing

Accreditation No. : TESTING 0250

Laboratory Status :  Permanent     Site     Temporary     Mobile

Item/Product Tested	Specific Test/ Range of Measurement	Standard/Test Method/ Technique Used
1. Iron and steel (cont.)	<p>Mechanical testing (cont.)</p> <p>- Bend test</p> <p style="padding-left: 20px;">Mandrel size 6, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38.1, 40, 45, 50.8, 63, 70, 73, 90 and 100 mm</p> <p>- Impact test</p> <p style="padding-left: 20px;">● Charpy V notch</p> <p style="padding-left: 40px;">Energy 6.3 J to 324 J</p> <p style="padding-left: 40px;">Temperature -70 °C to 30 °C</p> <p style="padding-left: 40px;">Energy 15 J to 110 J</p> <p style="padding-left: 40px;">Temperature -70 °C to 30 °C</p> <p>Chemical testing</p> <p>- Aluminium</p> <p style="padding-left: 40px;">0.014 % to 0.075 % by weight</p> <p>- Carbon</p> <p style="padding-left: 40px;">0.007 % to 1.10 % by weight</p>	<p>- TIS 20-2543 (2000)</p> <p>- TIS 24-2548 (2005)</p> <p>- ASTM A370-05</p> <p>- ASTM A370-09a<sup>81</sup></p> <p>- ASTM E290-97a</p> <p>- ASTM E290-09</p> <p>- ASME SA370-07, section II, part A</p> <p>- BS EN ISO 7438:2005</p> <p>- JIS Z 2248-2006</p> <p>Press bending method</p> <p>- ASTM A370-05</p> <p>- ASTM A370-09a<sup>81</sup></p> <p>- ASTM E23-05</p> <p>- ASTM E23-07a<sup>81</sup></p> <p>- ASME SA370-07, section II, part A</p> <p>- BS EN 10045-1:1990</p> <p>- JIS Z 2242-2005</p> <p>- ASTM E 415-08</p>

## Scope of Accreditation for Testing

Accreditation No. : TESTING 0250

Laboratory Status :  Permanent     Site     Temporary     Mobile

Item/Product Tested	Specific Test/ Range of Measurement	Standard/Test Method/ Technique Used
1. Iron and steel (cont.)	Chemical testing (cont.) - Chromium 0.037 % to 2.09 % by weight - Cobalt 0.004 % to 0.18 % by weight - Copper 0.082 % to 0.50 % by weight - Manganese 0.31 % to 1.19 % by weight - Molybdenum 0.006 % to 0.6 % by weight - Nickel 0.064 % to 4.13 % by weight - Niobium 0.002 % to 0.085 % by weight - Nitrogen 0.007 8 % to 0.015 % by weight - Phosphorous 0.004 % to 0.056 % by weight - Silicon 0.023 % to 1.15 % by weight - Sulfur 0.01 % to 0.047 % by weight - Tin 0.002 % to 0.045 % by weight - Titanium 0.005 % to 0.2 % by weight	- ASTM E 415-08

*Signature*

## Scope of Accreditation for Testing

Accreditation No. : TESTING 0250

Laboratory Status :  Permanent     Site     Temporary     Mobile

Item/Product Tested	Specific Test/ Range of Measurement	Standard/Test Method/ Technique Used
1. Iron and steel (cont.)	Chemical testing (cont.) - Vanadium 0.008 % to 0.3 % by weight	- ASTM E 415-08
2. Weld test coupon of metal	Mechanical testing - Tension test • Tensile strength Load 100 kN to 900 kN	- ASTM A370-05 - ASTM A370-09a <sup>ε1</sup> - ASTM E8-04 - ASTM E8/E8M-09 - ASME section IX, 2007 edition - ASME section IX, 2010 edition - AWS D1.1/D1.1M:2006 - AWS D1.1/D1.1M:2010 - AWS D1.6/D1.6M:2007 - AWS B4.0:2004 - ANSI/AASHTO/AWS D1.5-96 - ANSI/AASHTO/AWS D1.5-2002 - ANSI/AASHTO/AWS D1.6-99 - BS EN 895:1995 - ISO 15614-1:2004 - AS 2205.2.1-2003 - AS 2205.2.2-2003 - API 1104:2005 - API 1104 Twentieth edition, October 2005, Errata 2, December 2008

*sbrossa*

## Scope of Accreditation for Testing

Accreditation No. : TESTING 0250

Laboratory Status :  Permanent     Site     Temporary     Mobile

Item/Product Tested	Specific Test/ Range of Measurement	Standard/Test Method/ Technique Used
2. Weld test coupon of metal (cont.)	Mechanical testing (cont.) - Bend test  Mandrel size 6, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38.1, 40, 45, 50.8, 63, 70, 73, 90 and 100 mm	<ul style="list-style-type: none"> <li>- ASTM A370-05</li> <li>- ASTM A370-09a<sup>ε1</sup></li> <li>- ASTM E190-92 (Reapproved 2003)</li> <li>- ASTM E190-92 (Reapproved 2008)</li> <li>- ASME section IX, 2007 edition</li> <li>- ASME section IX, 2010 edition</li> <li>- AWS D1.1/D1.1M:2006</li> <li>- AWS B4.0:2007</li> <li>- AWS D1.1/D1.1M:2010</li> <li>- AWS D1.6/D1.6M:2007</li> <li>- ANSI/AASHTO/AWS D1.5-96</li> <li>- ANSI/AASHTO/AWS D1.5-2002</li> <li>- ANSI/AASHTO/AWS D1.6-99</li> <li>- BS EN 910:1996</li> <li>- ISO 15614-1:2004</li> <li>- AS 2205.3.1-2003</li> <li>- API 1104:2005</li> <li>- API 1104 Twentieth edition, October 2005, Errata 2, December 2008</li> </ul>

## Scope of Accreditation for Testing

Accreditation No. : TESTING 0250

Laboratory Status :  Permanent     Site     Temporary     Mobile

Item/Product Tested	Specific Test/ Range of Measurement	Standard/Test Method/ Technique Used
2. Weld test coupon of metal (cont.)	Mechanical testing (cont.) - Impact test • Charpy V notch Energy 6.3 J to 324 J Temperature -70 °C to 30 °C  - Vickers hardness test • Scale HV5 and HV10	- ASTM A370-05 - ASTM A370-09a <sup>ε1</sup> - ASTM E23-05 - ASTM E23-07a <sup>ε1</sup> - ASME section IX, 2007 edition - ASME section IX, 2010 edition - AWS B4.0:2007 - AWS D1.1/D1.1M:2006 - AWS D1.1/D1.1M:2010 - AWS D1.6/D1.6M:2007 - ANSI/AASHTO/AWS D1.5-96 - ANSI/AASHTO/AWS D1.5-2002 - ANSI/AASHTO/AWS D1.6-99 - BS EN 875:1995 - ISO 15614-1 : 2004 - AS 2205.7.1-1997 - AS 2205.7.1-2003  - ASTM E92-82 (Reapproved 2003) <sup>ε2</sup> - BS EN 1043-1:1996 - AS 2205.6.1-2003 - ISO 15614-1:2004

*Signature*

## Scope of Accreditation for Testing

Accreditation No. : TESTING 0250

Laboratory Status :  Permanent     Site     Temporary     Mobile

Item/Product Tested	Specific Test/ Range of Measurement	Standard/Test Method/ Technique Used
2. Weld test coupon of metal (cont.)	Mechanical testing (cont.) - Fracture test, fillet weld break test  - Nick break test  Macrostructure analysis  Ferrite content ● 0 % to 86.2 % ferrite ● 0 % to 121.6 ferrite number	- ASME section IX, 2007 edition - ASME section IX, 2010 edition - AWS B4.0:2007 - AWS D1.1/D1.1M:2006 - AWS D1.1/D1.1M:2010 - AWS D1.6/D1.6M:2007 - ANSI/AASHTO/AWS D1.5-2002 - BS EN 1320:1997 - AS 2205.4.2-2003  - AS 2205.4.1-2003 - API 1104:2005 - API 1104 Twentieth edition, October 2005, Errata 2, December 2008  - ASTM E340-00 (Reapproved 2006) - ASME section IX:2010 edition - AWS D1.1/D1.1M:2010 - BS EN 1321:1997 - ISO 15614-1:2004 - AS 2205.5.1:2003  - In-house method : W-18-05-01 by using feritscope

*[Signature]*

## Scope of Accreditation for Testing

Accreditation No. : TESTING 0250

Laboratory Status :  Permanent  Site  Temporary  Mobile

Item/Product Tested	Specific Test/ Range of Measurement	Standard/Test Method/ Technique Used
1. Weld test coupon of metal (cont.)	Ferrite content <ul style="list-style-type: none"><li>● 0 % to 86.2 % ferrite</li><li>● 0 % to 121.6 ferrite number</li></ul>	- In-house method : W-18-05-01 by using feritscope

Date of Issue : 19<sup>th</sup> April 2011

Signature : *Nattapon Nattasomb*

(Nattapon Nattasomboon)

Deputy Permanent Secretary for Industry

Chairman, Ministerial Cluster

for Industrial and Entrepreneurial Promotion

Chairman of Industrial Product Standards Council

Initial Date of Issue : 20<sup>th</sup> April 2009 Page 8/8

Issue No. 2