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PROFESSIONAL STANDARD

OF THE PEOPLE'S REPUBLIC OF CHINA

中华人民共和国行业标准

NB/T 47013.9-2012 (JB/T 4730.9)

Nondestructive Testing of Pressure Equipment - Part 9: Acoustic Emission Testing

承压设备无损检测 第 9 部分：声发射检测

Issued on: January 04, 2012 **Implemented on: March 01, 2012**

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According to the requirements of "Standardized Management Methods for Energy Industry (Tentative)", the National Energy Administration hereby approves to issue 182 professional standards (see annex) such as "Nondestructive Testing of Pressure Equipment - Part 7: Visual Examination", including 3 professional standards on energy (NB), 81 professional standards on electric power (DL) and 98 professional standards on oil and gas (SY).

Annex: Catalogue of Professional Standards

January 4, 2012

Annex:

Catalogue of Professional Standards

No.	Standard No.	Standard name	Replaced standard name	Reference standard No.	Approval date	Implementation date
1	NB/T 47013.7-012 (JB/T 4730.7)	Nondestructive Testing of Pressure Equipment - Part 7: Visual Examination		Modified in relation to: 1. Chapter IX, Volume V of "Boiler and Pressure Vessel Specifications" (ASME, 2001) 2. "Non-destructive Testing-Visual Testing - General Principles" (EN 13018:2001)	2012-01-04	2012-03-01
2	NB/T 47013.8-2012 (JB/T 4730.8)	Nondestructive Testing of Pressure Equipment - Part 8: Leakage Examination		Modified in relation to: 1. Chapter X, Volume V of "Boiler and Pressure Vessel Specifications" (ASME, 2001); 2. ASTM E1066-95R06	2012-01-04	2012-03-01
3	N/T 47013.9-2012 (JB/T4730.9)	Nondestructive Testing of Pressure Equipment - Part 9: Acoustic Emission Examination			2012-01-04	2012-03-01
4~182	Ignored					

Contents

Foreword

This Part is Part 9 (Acoustic Emission Testing) of "Nondestructive Testing of Pressure Equipment" (NB/T 47013).

In this Part, Appendix A is normative while Appendix B informative.

This Part was proposed and is under the jurisdiction of National Technical Committee on Boilers and Pressure Vessels of Standardization Administration of China (SAC/TC 262).

Drafting organizations of this Part: China Special Equipment Inspection & Research Institute, Northeast Petroleum University, Hefei General Machinery Research Institute, Wuhan Boiler Pressure Vessel Inspection Institute, Shanghai Research Institute of Materials, Beijing Soundwel Technology Co., Ltd., Beijing Crahesion Science & Trade Co., Ltd., Machinery Research Institute of Sinopec Tianjin Company, Aerospace Material Process Property Testing and Failure Analysis Center, Nanjing Boiler and Pressure Vessel Inspection Institute, Hebei Supervision and Inspection Institute of Boiler and Pressure Vessel, Pressure Vessel Inspection and Research Institute of Boiler and Pressure Vessel of Jiangxi Province, Anhui Huaxia High-tech Development Co., Ltd. and Hebei Jinduo Testing Technology Co., Ltd.

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The National Technical Committee on Boilers and Pressure Vessels of Standardization Administration of China (SAC/TC 262) is in the charge of the explanation of this Part.

Introduction

Since 1986, China Special Equipment Inspection & Research Institute has been dedicated to the application of acoustic emission, a new nondestructive testing technique, to the safety inspection of special equipment. The research team has organized more than 10 organizations to undertake the national science and technology as well as relevant support programs as well as a series of subjects sponsored by the former Ministry of Labor and the General Administration of Quality Supervision (AQSIQ), so as to research acoustic emission testing and assessment techniques for special equipment (such as pressure vessel and pressure piping) and develop relevant equipment. So far, 7 research achievements have been made, with wholly technological breakthrough in the acoustic emission testing of pressure equipment.

(1) From 1986 to 1989, "Research on the Application of Acoustic Emission to the Inspection of Pressure Vessels in Use", a subject of the former Ministry of Labor;

(2) From 1992 to 1995, "Acoustic Emission Testing and Monitoring Assessment Technique for Hazardous Defects of Pressure Vessels in Service as Well as Relevant Equipment Development", a national major science and technology subject during the "Eighth Five-year Plan";

(3) From 1996 to 2001, "Research on Key Techniques for the Defect Testing and Monitoring of Pressure Piping", a national major science and technology subject during the "Ninth Five-year Plan";

(4) From 2000 to 2002, "Development of Safety Testing Instrument for Boiler Piping" - "Research on Multi-channel Digitalized Acoustic Emission Testing and Analysis System", a national major science and technology subject during the "Ninth Five-year Plan";

(5) From 2001 to 2006, "Research on Key Techniques for the Online Inspection and Monitoring of Pressure Vessels", a national major science and technology subject in the "Eleventh Five-Year Plan";

(6) From 2006 to 2009, "Research on New Methods and Key Techniques for the Leakage Testing of Fluid Pipe Network", a major project sponsored by national natural science fund;

(7) From 2006 to 2009, "Research on the Leakage Point Location and Testing of Embedded Gas Piping and Relevant Equipment Development", a subject of national science and technology support program during the "Eleventh Five-Year".

Some key technical parameters in this Part mainly refer to research achievements of the above-mentioned projects, on-site acoustic emission testing experience of several special pressure equipment as well as testing data analysis and acoustic emission location source re-inspection results.

Nondestructive Testing of Pressure Equipment - Part 9: Acoustic Emission Testing

承压设备无损检测　第 9 部分：声发射检测

1 Scope

This Part specifies the classification and evaluation of acoustic emission testing methods and results for metal pressure equipment.

This Part is applicable to the acoustic emission testing and monitoring of active defects for metal pressure equipment in use.

This Part is not applicable to the acoustic emission testing and monitoring of leakage.

2 Normative References

The following documents are indispensable for the application of this document. For dated references, only the dated edition is applicable to this document. For undated references, the latest edition (including all the amendments) applies.

GB/T 12604.4　Non-destructive Testing - Terminology - Terms Used in Acoustic Emission Testing

GB/T 19800 Non-destructive Testing - Acoustic Emission Inspection - Primary Calibration of Transducers

GB/T 19801 Non-destructive Testing - Acoustic Emission Inspection - Secondary Calibration of Acoustic Emission Sensors

GB/T 20737 Non-destructive Testing - General Terms and Definitions

JB/T 4730.1 Nondestructive Testing of Pressure Equipment - Part 1: General Requirements

JB/T 4730.2 Nondestructive Testing of Pressure Equipment - Part 2: Radiographic Testing

JB/T 4730.3 Nondestructive Testing of Pressure Equipment - Part 3: Ultrasonic Testing

JB/T 4730.4 Nondestructive Testing of Pressure Equipment - Part 4: Magnetic Particle Testing

JB/T 4730.5 Nondestructive Testing of Pressure Equipment - Part 5: Penetrant Testing

JB/T 4730.6 Nondestructive Testing of Pressure Equipment - Part 6: Eddy Current Testing

NB/T 47013.7　Nondestructive Test of Pressure Equipment - Part 7: Visual Examination

NB/T 47013.8　Nondestructive Test of Pressure Equipment - Part 8: Leak Testing

NB/T 47013.10　Nondestructive Testing of Pressure Equipment - Part 10: Ultrasonic Time of Flight Diffraction Technique

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