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**ELECTRIC POWER INDUSTRIAL STANDARD  
OF THE PEOPLE'S REPUBLIC OF CHINA**

中华人民共和国电力行业标准

**DL/T 820-2002**  
Substituting DL/T 5048-1995

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**The code of ultrasonic inspection section for  
butt welds of pipes**

管道焊接接头超声波检验技术规程

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## Foreword

According to the requirements of the document No.22 (2000) issued by the Electricity Power Department of National Economic Trade Committee of the People's Republic of China, National Electricity Power Construction Research Institute of China organized a standard modification group that included the experts in the national electricity power industry, so as to make modifications on the existing Code of Ultrasonic Detection Section for Butt Welds of Pipes (No. DL/T 5048-1995).

During the modification of the mentioned standard, such China's national standards as Hand Ultrasonic Defect Detecting Method for Steel Welding Seams and Classification of Defects (No. GB 11345-1989) and such mechanical industrial standards as Non-damage Testing of Pressurized Vessels (No. JB 4730-1994).

In the modified standard, the clauses related to the defect detecting processes that have proved to be feasible through long-term practice have been preserved.

In the modified standard, section of "Detection of austenite butt welds of pipes with medium-small diameter and thick wall" are added.

Regarding the application scope of the modified standard, the thickness of the pipe walls is increased to 160mm.

In the modified standard, the ultrasonic detection for the butt welds of pipes are divided into 3 sections, i.e., "Detection of butt welds of pipes with medium-thick walls", "Detection of butt welds of pipes with medium-small diameter and thin wall" and "Detection of austenite butt welds of pipes with medium-small diameter and thick wall".

In the modified standard, specific methods for ultrasonic detection of butt welds of pipes and evaluation on grades of detection results are provided, so that the standard for the ultrasonic detection of the butt welds of pipes are more complete.

The modified standard will substitute the standard No. DL/T 5048-1995.

The appendixes to the standard, i.e., Appendix A, Appendix B, Appendix C, Appendix D, Appendix E, Appendix G, Appendix H, Appendix I and Appendix J are normative appendixes to the standard.

Appendix F of the standard is reference appendix to the standard.

The standard is provided by Standardization Committee for Welding in Electricity Power Plants under Electricity Industry.

The mentioned standard is mainly prepared by such institutes as National Electricity Power Construction Research Institute of China, Electricity Power Testing and Research Institute of Jiangsu Province of China, Electricity Power Science Research Institute of Heilongjiang Province of China and Electricity Power Science Research Institute of North China.

The mentioned standard is mainly prepared by such persons as Qin Changrong, Chi Yongbin, Yu Qiang, Hu Xianlong and Bao Leqing.

The Standardization Committee for Welding in Electricity Power Plants under Electricity Industry is responsible for the explanation of the standard.

The standard is firstly issued in 1983 and firstly modified in 1995. The modification of the standard this time is the second modification to the standard.

# **The code of ultrasonic detection section for butt welds of pipes**

## **1 Scope**

**1.1** The standard specifies the ultrasonic detection methods for the butt welds of pipes and the evaluation on grades of the detection results.

**1.2** The standard is applicable for the hand type A pulse reflection ultrasonic detection for the butt welds of pipes with medium-thick walls, butt welds of pipes with medium-small diameter and thin walls and austenite butt welds of pipes with medium-small diameter and thick walls during the fabrication, installation and maintenance of the pipes.

a) Pipes with medium-thick walls: the outer diameter of the pipes being more than or equal to 108mm, the thickness of the pipe walls being more than or equal to 14mm and being less than or equal to 160mm;

b) Pipes with medium-small diameters and thin walls: the outer diameter of the pipes being more than or equal to 32mm and being less than or equal to 159mm, the thickness of the pipe walls being more than or equal to 4mm and being less than or equal to 14mm;

c) Austenite pipes with medium-small diameters and thin walls: the outer diameter of the pipes being more than or equal to 32mm and being less than or equal to 159mm, the thickness of the pipe walls being more than or equal to 4mm and being less than or equal to 8mm.

**1.3** The standard is neither applicable to the butt welds of the cast iron pipes, nor applicable to the butt welds of austenite stainless steel pipes with over 8mm pipe walls and the longitudinal butt welds of the pipes with the ratio of the inner diameter to the outer diameter being less than 80%. The standard is not applicable to the abnormal steel butt welds of austenite pipes and pearling pipes.

## **2 Reference standards**

The standard uses some clauses specified in the following reference standards. The subsequent modification sheets (including the mistake-correction sheets) and modified versions of the reference standards that are marked with the issuing years are not applicable to the standard. However, the parties that have reached agreement in accordance with the standard are encouraged to investigate whether the updated versions of the standards can be used. As for the reference standards that are not marked with the issuing years, the updated versions are applicable.

GB/T 11345-1989 Hand Ultrasonic Detection Methods for Steel Butt Welds and Grade

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