JIS

JAPANESE
INDUSTRIAL
STANDARD

Translated and Published by
Japanese Standards Association

JIS Z 3070 : 1998

Methods for automatic ultrasonic testing for welds of ferritic steel

ICS 25.160.40

Descriptors : steels, welding, weldability testing, ultrasonic testing, flaw detection

Reference number : **JIS Z 3070 : 1998 (E)**

Foreword

This translation has been made based on the original Japanese Industrial Standard established by the Minister of International Trade and Industry through deliberations at Japanese Industrial Standards Committee in accordance with the Industrial Standardization Law.

There is no International Standard corresponding to this Standard. At the establishment, conformity with **JIS Z 3060** *Method for ultrasonic examination for welds of ferritic steel* which is a Standard for ultrasonic testing carried out manually has been taken into consideration.

Attention is drawn to the possibility that some parts of this Standard may conflict with a patent right, application for a patent after opening to the public, utility model right or application for registration of utility model after opening to the public which have technical properties. The relevant Minister and the Japanese Industrial Standards Committee are not responsible for identifying the patent right, application for a patent after opening to the public, utility model right or application for registration of utility model after opening to the public which have the said technical properties.

Date of Establishment: 1998-05-20

Date of Public Notice in Official Gazette: 1998-05-20

Investigated by: Japanese Industrial Standards Committee
Divisional Council on Welding

JIS Z 3070:1998, First English edition published in 2000-02

Translated and published by: Japanese Standards Association
4-1-24, Akasaka, Minato-ku, Tokyo, 107-8440 JAPAN

In the event of any doubts arising as to the contents, the original JIS is to be the final authority.

Methods for automatic ultrasonic testing for welds of ferritic steel

Introduction This Japanese Industrial Standard was newly established in 1998. This Standard was adjusted to the typical specification of manual ultrasonic testing, **JIS Z 3060** : 1994 *Method for ultrasonic examination for welds of ferritic steel.*

There is no International Standard corresponding to this Standard.

1 Scope This Standard specifies the system, the methods for testing and images of test results in the case of automatically performing the ultrasonic angle beam using the 1-probe or 2-probe pulse reflection technique for complete welds of ferritic steel with a thickness of over 6 mm. However, the Standard shall not apply to welds of tube joints being in manufacturing process and welds of nuclear power plants.

2 Normative references The following standards contain provisions which, through reference in this text, constitute provisions of this Standard. The most recent editions of the standards indicated below shall be applied.

JIS Z 2300 *Glossary of terms used in nondestructive testing*
JIS Z 2345 *Standard test blocks for ultrasonic testing*
JIS Z 2352 *Method for assessing the overall performance characteristics of ultrasonic pulse echo testing instrument*
JIS Z 3060 *Method for ultrasonic examination for welds of ferritic steel*

3 Definitions The definitions of principal terms used in this Standard are specified as follows ; for others as specified in **JIS Z 2300** and **JIS Z 3060.**

a) automatic ultrasonic testing system This system shall be composed of an automatic ultrasonic detector, a probe(s), a scanner and an image display.

b) automatic ultrasonic detector The detector shall be capable of automatically recording the condition of acoustic coupling at respective positions of probes for scanning, path lengths and echo heights satisfying the prescribed requirements and at the same time capable of performing distance amplitude correction.

c) image The image shall indicate on coordinates the existence and position of and the echo height or region of pulse amplitude in a reflection source where echo heights exceeding the lower indication limit value, which may be set optionally, can be obtained : the position of such a reflection source is to be evaluated in advance using the path length and the angle.

d) Echo recording gate The range for recording echoes set on the time axis and the echo height axis.

e) coupling check Coupling check quality of acoustic coupling between probe and test object.

f) image display This image display shall be capable of indicating or outputting coupling check pattern and image of test results.

g) scanner The scanner shall be capable of automatically scanning one or multiple probes and one or multiple sets of a transmitting probe and a receiving probe.

h) primary testing The primary test shall be performed for the testing range of a test object to check the existence of flaws for evaluation.