

JIS

JAPANESE INDUSTRIAL STANDARD

**Methods of ultrasonic angle
beam examination for welds
of aluminium pipes and tubes**

JIS Z 3081—1994

Translated and Published

by

Japanese Standards Association

**In the event of any doubt arising,
the original Standard in Japanese is to be final authority.**

Methods of ultrasonic angle beam examination for Z 3081-1994
welds of aluminium pipes and tubes

1. Scope This Japanese Industrial Standard specifies the method of ultrasonic angle beam examination from outer surface of pipes by the pulse echo technique using an ultrasonic test instrument having A scope display on full penetration welds of aluminium and aluminium alloy pipes and tubes (hereafter called "aluminium pipes") However, this Standard is applied to the joint welds with the ratio $\frac{t}{D}$ of wall thickness t to outer diameter D of less than 16 %, among the circumferential joint welds of aluminium pipes with outer diameter of 100 mm or more to 1500 mm or less and wall thickness of 5 mm or more, and longitudinal joint welds of aluminium pipes with outer diameter of 300 mm or more to 1500 mm or less and wall thickness of 5 mm or more.

Remarks: The standards cited in this Standard are shown in the following.

- 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 3080 Method of ultrasonic angle beam testing and classification of test results for butt welds in aluminium plates
- JIS Z 3871 Standard qualification procedure for ultrasonic testing technique of aluminium and aluminium alloy welds

2. Definitions The terms defined by JIS Z 2300 are used in this Standard except the following terms.

- (1) reference level (H_{RH}) A level of echo height is used as the reference at the time when an echo height is evaluated. In the case of circumferential joint welds, the reference level is the echo height of reference hole (side drilled hole of 5.0 mm in diameter) of RB-A4AL specified in JIS Z 3080, and in the case of longitudinal joint welds, it is a level by 4 dB higher than the echo height of reference hole (side drilled hole of 2.0 mm in diameter) of RB-A7AL shown in Fig. 1.
- (2) equivalent size of transducer An apparent transducer size observed from the propagating direction of ultrasonic wave refracting and transmitting in the test object. It is divided from actual transducer size shown by [].