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**Method of automatic ultrasonic
inspection for graphite ingot**

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Foreword

This translation has been made based on the original Japanese Industrial Standard established by the Minister of Economy, Trade and Industry through deliberations at the Japanese Industrial Standards Committee according to the proposal of establishing a Japanese Industrial Standard from The Japanese Society for Non-Destructive Inspection (JSNDI)/ Japanese Standards Association (JSA) with a draft being attached based on the provision of Article 12 Clause 1 of the Industrial Standardization Law.

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In the event of any doubts arising as to the contents,
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Method of automatic ultrasonic inspection for graphite ingot

1 Scope This Japanese Industrial Standard specifies the method of the automatic ultrasonic inspection of planar flaws in all directions of isotropic graphite ingots which shall be performed underwater by utilizing a pulse echo technique using a single probe.

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 (including amendments) indicated below shall be applied.

JIS Z 2300 *Terms and definitions of nondestructive testing*

JIS Z 2305 *Non-destructive testing—Qualification and certification of personnel*

JIS Z 3070 *Methods for automatic ultrasonic testing for welds of ferritic steel*

3 Definitions For the purpose of this Standard, the definitions given in clauses 3 of JIS Z 2300 and JIS Z 3070 and the following definitions apply.

a) **plane scanning** two-dimensional scanning along the incidence plane of the test block among methods for the setting of a direction of movement and a gap of the probe

Either R-X scanning of 3 b) or R-Z scanning of 3 c) shall be performed according to two incidence planes.

b) **R-X scanning** test block rotation—test block diametrical direction scanning of the plane scanning, which shall be performed at the time of incidence from the upper and the lower surfaces of the test block, which are plane surfaces (see figure 1)

c) **R-Z scanning** test block rotation—test block longitudinal direction scanning of the plane scanning, which shall be performed at the time of the incidence from the side surface of the test block, which is a curved surface (see figure 2)

d) **incident-angle scanning** scanning which changes the incident angle in sequence at the time of the plane scanning among methods for the setting of a direction of movement and a gap of the probe

Either i_1 - i_2 scanning or i_1 - o_{ff} scanning shall be performed by the method of either orthogonal scanning or staggered scanning according to the incident plane.

e) **i_1 - i_2 scanning** upper and lower angle (probe inclining angle) i_1 —horizontal angle (probe swivel angle) i_2 scanning of incident-angle scanning, which shall be performed at the time of the incidence from the upper and lower surfaces of the test block (see figure 1)

R-X scanning shall be performed at each scanning point (data obtaining point).

f) **i_1 - o_{ff} scanning** upper and lower angle (probe inclining angle) i_1 —offset o_{ff} scanning of incident-angle scanning, which shall be performed at the time of the incidence from the side surface of the test block (see figure 2)