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Methods of radiographic examination for welded joints in stainless steel

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Reference number : **JIS Z 3106 : 2001 (E)**

Foreword

This translation has been made based on the original Japanese Industrial Standard revised by the Minister of Economy, Trade and Industry through deliberations at the Japanese Industrial Standards Committee in accordance with the Industrial Standardization Law. Consequently **JIS Z 3106** : 1971 is replaced with **JIS Z 3106** : 2001.

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

Methods of radiographic examination for welded joints in stainless steel

1 Scope This Japanese Industrial Standard specifies the methods of radiographic examination for welded joints of stainless steel, heat-resistant steel, corrosion- and heat-resistant superalloy, nickel and nickel alloy, which are carried out by the direct radiography through the irradiation of X-rays or gamma-rays (hereafter referred to as "radiation") using industrial X-ray films.

2 Normative references The standards listed in Attached Table 1 contain provisions which, through reference in this Standard, constitute provisions of this Standard. The most recent editions of the standards (including amendments) shall be applied.

3 Definitions For the purposes of this Standard, the definitions given in **JIS Z 2300** and **JIS Z 3001**, and the following definitions apply.

a) **thickness of base metal** For a butt welded joint whose two base metals differ in thickness, the lighter thickness shall be the thickness of base metal. For a circumferentially welded joint for pipe, the lighter wall thickness shall be the thickness of base metal. And for a Tee welded joint, the thickness of T1 material as shown in Annex 3 Fig. 1 and Annex 3 Fig. 2 shall be the thickness of base metal.

b) **test part** The weld metal to be examined, including its heat-affected zone.

4 Classification of radiograph image quality The image quality of radiograph shall be classified into five grades; Grade A, Grade B, Grade P1, Grade P2 and Grade F. Grade A can be obtained by applying usual radiographic technique and Grade B can be obtained by applying a radiographic technique capable of attaining high detection sensitivity for flaws. Grade P1 and Grade P2 are normal image qualities obtainable when the radiograph of a circumferentially welded joint for pipe is taken by applying duplex penetration through its wall; the former available for the radiograph taken on one side of the joint and the latter for the radiograph taken on both sides of the joint. Grade F is normal image quality obtainable in the radiographic examination of a Tee welded joint. The application of these image qualities shall depend on the shape of welded joints, as shown in Table 1.

Table 1 Classification of radiograph image quality

Shape of welded joint	Classification of image quality
Butt welded joint for plate and other welded joints whose geometrical conditions at the time of taking radiographs can be deemed equal to those of the butt welded joint	Grade A, Grade B
Circumferentially welded joint for pipe	Grade A, Grade B, Grade P1, Grade P2
Tee welded joint	Grade F