KES

Test Standard for Ultra Sonic Excursion of Steel Plate

KES T – L427

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1. Scope of Application

This standard shall specify excursion method for ultra sonic test of steel pipe without joint and welded part of welded steel plates that has outer diameter of minimum 15.9 mm, thickness 2 mm and thickness and diameter percentage ratio (t/d) is less than 20%. This standard shall not be applied to welded stainless steel pipes. General items not discussed in this standard shall be followed from KS B 0971 (Ultra Sonic Excursion Method of metallic material using pulse reflection method).

2. Apparatus

The apparatus is made of excursion device, probe, transfer device, automatic alarm device or recording device.

2.1 Excursion Device

Excursion should be a Pulse Reflection type, and has following performance specification.

(1) Amplification straightness is expressed by Appendix 1 of KS B 0817 and should be first grade or second grade.

(2) Long Distance Resolution is expressed by Appendix 3 of KS B 0817 and should be A grade or B grade.

2.2 Probe

Requirements for the probe are stated below.

(1) Performance of the probe should be sufficient to detect artificial groove on comparison test piece.

(2) The measurement of diameter of the oscillator of vertical probe should be 10~20 mm (Each sides should have same area). Measurement of oscillator of rectangular probe should be 10~20 mm to direction of the axis.

(3) Transfer Device, Automatic Alarm Device, or Recording Device

In case these devices are used, they should have enough performance to process of

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excursion and evaluation of result.

3. Comparison Test Piece

3.1 Material

Material used in comparison test piece should be identical to test piece in terms of material, measurements, and condition of surface.

3.2 Classification, shape and measurements of artificial groove

3.2.1 Classification of Artificial Groove

Grooves are classified as groove, v shaped groove, or drill hole. And they are classified in detail depending on depth and size of the hole as shown in Table 1.

Table 1 Classification of Artificial Groove

Angled Groove		V Shaped Groove		Drilled Hole	
Naming Method	Depth of the groove	Naming Method	Depth of the groove	Naming Method	Depth of the groove
US-5	5% of the thickness	UV-5	5% of the thickness	UD-32	3.2 mm
US-8	8% of the thickness	UV-8	8% of the thickness	UD-40	4.0 mm
US-10	10% of the thickness	UV-10	10% of the thickness	UD-50	5.0 mm
US-12	12.5% of the thickness	UV-12	12.5% of the thickness		
US-15	15% of the thickness	UV-15	15% of the thickness		

Note : Minimum depth of each groove and v shaped groove is 0.45 mm for steel pipes without joints and electric resistance welded steel pipes, and 0.30 mm for cold strip steel pipes without joints.

3.2.2 Shape and Measurement of Artificial Groove

Shown in the figure.

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