

U 06

CB

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REPUBLIC OF CHINA**

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CB 3395-1992

**Measurement of residual stress using the
borehole strain release method**

残余应力测试方法

钻孔应变释放法

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Shipping Professional Standard of the People's Republic of China

Measurement of residual stress using the borehole strain release method

CB 3395 — 92

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1 Main content and application scope

This standard stipulates the basic principles, test equipments, test procedures, calibration of strain release coefficient, stress calculation and correction of measurement error when using residual stress test method - borehole strain release method.

This standard is applicable to the superficial residual stress test of metal welding parts, castings and forgings and heat-treated parts.

2 Terms

2.1 Strain release coefficient

The proportionality coefficient related to the material, geometric dimension of resistance strain foil, paste position, the shape and dimension of the hole that is associated with residual stress and strain release in the borehole strain release method.

2.2 Strain release

The strain variation before and after boring the holes for those boreholes of structural parts with field of stress

3 Basic principle

In infinite slab with two-dimensional stress, paste strain rosette whose resistance strain foils are 0° , 45° , 90° as shown in Figure 1; bore a hole in the center of strain rosette with the hole depth equal to or slightly greater than hole diameter. When the hole depth is 1.2 times the hole diameter, the strain is almost fully released. For the hole depth is much less than the thickness of slab, the theory resolution acquired when boring through holes can be used as the approximate solution when boring blind holes. Measure the strain relief ε_1 ,

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