

عنوان مقاله:

Residual Stress Measurement in Quenched Samples using Ring-Core Technique

محل انتشار:

کنفرانس دو سالانه بین المللی مکانیک جامدات تجربی (سال: 1392)

تعداد صفحات اصل مقاله: 6

نویسندگان:

A. H Mahmoudi - Assistant Professor

S Rabiei - M.S. Student, Mechanical Engineering Department, Engineering Faculty, Bu-Ali Sina University, Hamedan, Iran

خلاصه مقاله:

Ring-Core Method is a destructive technique for measuring residual stresses. In this technique depth of a cut is increased incrementally in a part containing residual stresses. The strain gauges are attached at the surface of the components similar to the center hole drilling technique. However, it can measure deeper residual stresses in comparison with the former technique. In ring core technique, strains are measured at the top of the core after each slot. Residual stresses are then calculated using relaxation coefficients which are determined experimentally or numerically. In the present research, different numerical approaches are studied to measure residual stresses. The residual stresses in cube shaped components and cross beam made of stainless steel 316L are measured. Quenching process was used to induce residual stresses into cube shaped specimens. Quenching process was performed in a way that different levels of residual stresses were achieved. Furthermore, finite element analyses of the ring core technique and residual stress inducing methods were carried out. The experimental measurements of residual stresses were then compared with those obtained numerically. The results showed that Ring-Core technique is sensitive to the effects of plasticity.

کلمات کلیدی:

Residual stress, Ring-Core method, Integral method, Incremental strain method, Quench treatment

لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/263985>

