

عنوان مقاله:

Experimental investigation of cutting tool geometry effect on residual stress in turning of St316

محل انتشار:

کنفرانس دو سالانه بین المللی مکانیک جامدات تجربی (سال: 1396)

تعداد صفحات اصل مقاله: 2

نویسندگان:

Javad Mohammadi - M.Sc. Graduate, Faculty of Mechanical Engineering, University of Tabriz, Tabriz, Iran

Behnam Davoodi - Associate Professor, School of Mechanical Engineering, Iran University of Science and Technology, Tehran, Iran

خلاصه مقاله:

Cutting tool geometry has a direct effect on residual stress. In this study, in order to evaluate tool geometry effect on the magnitude of residual stress, nose radius is selected as a variant of tool geometry. Workpiece material is low carbon stainless steel 316L. TMCT tool is used for machining of this austenitic stainless steel. Grade 4 tools is GC1125, suitable for machining of AISI316L. Tests are performed under various cutting speed and feed rate. All tests are implemented in orthogonal machining. Annealing has been performed prior to turning in order to achieve uniform microstructure. Residual stresses are measured by X-ray diffraction method. Lower magnitudes of compressive stress have been observed in smaller nose radius (0.2mm) cutting tool. In the meantime, the lower rate of tensile stress has been observed in smaller nose radius cutting tool. Conclusively, smaller tool nose radius has a direct effect on lower amounts of residual stress.

کلمات کلیدی:

Tool Geometry, Residual Stress, Stainless Steel 316L, Turning

لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/739245>

