

## عنوان مقاله:

Experimental Investigation of the Expansion Joints Energy Absorption Behavior under the Axial Loading

## محل انتشار:

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

تعداد صفحات اصل مقاله: 8

## نویسندگان:

Abbas Niknejad - Assistant Professor

Jafar Rouzgar - Assistant Professor, Mechanical and Aerospace Engineering Department, Shiraz University of Technology, Shiraz, Iran

Yashar Abdolzadeh - Master of science student

Mohammad Abbasi - Master of Science student, Undergraduate student, Mechanical Engineering Department, Yasouj University, P.O. Box ۷۵۹۱۴-۳۵۳, Yasouj, Iran

## خلاصه مقاله:

In the present research, energy absorption behavior of steel expansion joints subjected to the axial loading is investigated by the experimental method. For this purpose, three types of thin-walled specimens with the circular cross-section consist of circular tubes, semi-formed expansion joints and also, the final-formed expansion joints are axially compressed between two rigid platens. The semiformed and final-formed expansion joints were prepared and produced by the hydroforming. In each group, several specimens with the different wall thicknesses, inner diameters and length were prepared and axially compressed. The load-displacement and absorbed energy-displacement diagrams of each specimen are sketched and also, the specific absorbed energy is measured during the test. Experiments show that the instantaneous axial load and absorbed energy of the circular tubes are higher than the semi-formed expansion joints with the same characteristics. Also, the final-formed expansion joints absorb the higher energy than the semi-expansion joints, in the same geometrical and material conditions. Furthermore, the experiments show that energy absorption capacity of the circular tubes increases, when the inner radius decreases. The results show that the circular tubes without any preformed process have the higher specific absorbed energy, comparing with the semi-formed and final-formed expansion joints; but, in the expansion joints, the plastic deformations are controlled and the more regular deformation mode is considered, comparing with the simple circular tubes.

## کلمات کلیدی:

Absorbed energy; Axial loading; Circular tubes; Expansion joints; Hydroforming

## لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/263961>



