Non-linear Analysis Of Shroud Expansion

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Abstract

Shroud is used to provide protection against dirt or foreign substance gathering on cable gland assembly. Mostly they provide mechanical impact resistance and serve as additional protection. The existing shroud is made up of Polyvinylchloride which is inherently a self-extinguishing fire-retardant material however having limited elasticity which prohibit the expansion and variability . In current work, various design of shrouds made up of Hyper-elastic material-based are designed and analyzed to study the non-linear expansion behavior. Least square regression model is fitted with various hyperelastic models available in literature using COMSOL Multiphysics® Optimization Module In-house setup was designed and developed to extract biaxial stress strain curve. Based on the materials composition behavior, suitable material has been selected, and Finite Element analysis of shroud has been performed to get the required induced stresses to achieve desired variability.