

# Toroidal Spring Coil: Displacements & Stress Analysis to Detect the Sealing Parameters

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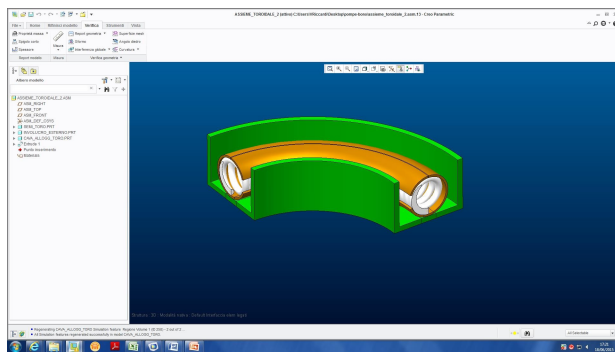
## Abstract

The aim of the simulation is to study the behavior of a particular arrangement of a sealing system made of a Toroidal Spring Coil encapsulated in an thin casing, which is provided with a circumferential cut to permit the pressure fill it inside.

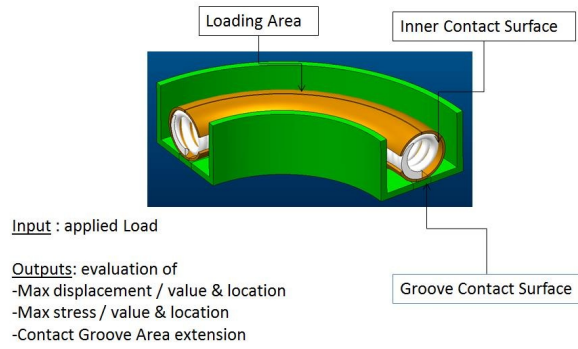
The mechanical simulation implemented in COMSOL Multiphysics® softwar is necessary to understand the displacements and stresses of the structure under a pressure on the top of the casing, pushed by a flange.

The main interest is to establish what is the required gap to be assured between the sealing-system and the lateral groove surfaces; any possible supplementary lateral contact shall be - in fact - unwanted to assure a proper functionality.

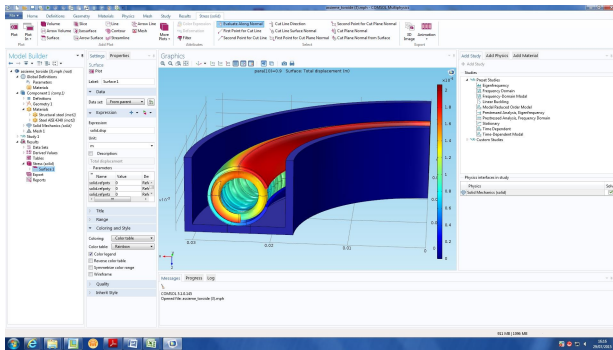
## Figures used in the abstract



**Figure 1:** Assembly studied



**Figure 2:** Boundary conditions applied to simulation



**Figure 3:** Total displacement in the assembly performed in a structural mechanics simulation

**Figure 4**