

## Optimization of Three-Layer Corrugated Metal Gasket by Using Finite Element Method

**Authors :** I Made Gatot Karohika, Shigeyuki Haruyama, Ken Kaminishi

**Abstract :** In this study, we proposed a three-layer metal gasket with Al, Cu, and SUS304 as the material, respectively. A finite element method was employed to develop simulation solution and design of experiment (DOE). Taguchi method was used to analysis the effect of each parameter design and predicts optimal design of new 25A-size three layer corrugated metal gasket. The L18 orthogonal array of Taguchi method was applied to design experiment matrix for eight factors with three levels. Based on elastic mode and plastic mode, optimum design gasket is gasket with core metal SUS304, surface layer aluminum,  $p_1 = 4.5$  mm,  $p_2 = 4.5$  mm,  $p_3 = 4$  mm,  $T_g = 1.2$  mm,  $R = 3.5$  mm,  $h = 0.4$  mm and  $T_s = 0.3$  mm.

**Keywords :** contact width, contact stress, layer, metal gasket, corrugated, simulation

**Conference Title :** ICMEM 2017 : International Conference on Mechanical Engineering and Mechatronics

**Conference Location :** Kyoto, Japan

**Conference Dates :** April 27-28, 2017