

Hertz contact

REFERENCE Benchmark Tests for Finite Element Modeling of Contact, Gapping and Sliding, Ref . R0081, NAFEMS, Glasgow, 2001

MODEL FILENAME Herz contact.nfx

Figure 1 shows an elastic cylinder pressed onto a rigid foundation. The rigid foundation is constrained in all directions. The cylinder is constrained in the horizontal direction along the inner edge to simulate the behavior of a half cylinder. The results are obtained for three load values; $F = 25, 50,$ and 100 N. Geometric nonlinear analyses are carried out to determine the contact pressure along the contact interface, and the results are compared with the theoretical solution.

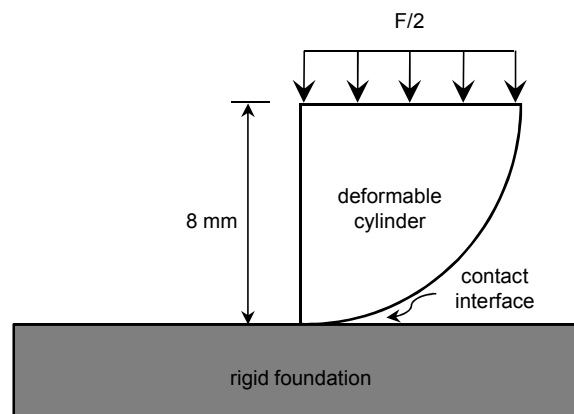


Figure 1. Pressed elastic cylinder model

Material data	Young's modulus	$E_{cyl} = 500$ MPa
	Poisson's ratio	$\nu = 0.3$

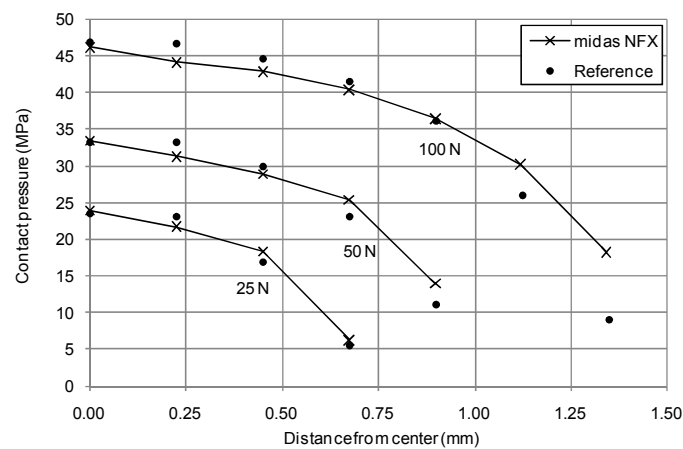


Figure 2. Contact pressure distribution