SUMMARY

The paper presents problems of modeling of microstructural plates made of functionally graded materials (FGM-type). There are considered thin, linear-elastic plates with tolerance-periodic structures in planes parallel to the plate midplane.

The FGM-type plate models presented in this work have been obtained using the tolerance averaging technique. Proposed models describe plates by equations with smooth, slowly varying coefficients. It should be note the tolerance model and the asymptotic-tolerance model take in to account the effect of the microstruture size on the problems under consideration.

The presented equations have been applied to investigate the free vibration frequencies and critical forces for a transversally graded plates. Results are obtained using the Ritz method. Also, the calculated frequencies of free vibrations plate band were compared with the finite element method in selected special cases.

Magda Kaźmierczak-Sobińska