

# EXPERIMENTAL STUDY OF THE THERMAL EXPANSION COEFFICIENT OF HEAT-CONDUCTING GASKETS

*Borisenko D.I.,\* Kuznecov K.I., Sukhikh A.A., Shish A.I.*

*MPEI (TU), Moscow, Russia*

*\*dima-luxinzhi@mail.ru*

Thermal expansion coefficient is an important thermal characteristic. The object of research — heat conducting pads — domestic analogues of materials series SilPad , GapPad and Bond-Play foreign production, widely represented in the market of electronic equipment.

To perform this task, a thermal expansion measurement unit was developed and manufactured. The error of measurement of the coefficient of thermal expansion is determined by the accuracy of measurement of linear displacement of the indicator and the precision of the fixing temperature (the temperature measurement error of 0.5 percent). Maximum permissible error of the indicator in a vertical position on the plot scale does not exceed: in the range of 200 divisions 2 micron; in the range 1 mm — 2.5 micron and a sample thickness of 5 mm is not greater than 0, 1 percent.

With positive temperature values, the difference between the coefficient of thermal expansion of domestic samples and American analogues does not exceed 10 percent.

The studies were carried out in the temperature range from -140 to 150 Celsius degree. Conducted performance measurements on the samples of PTFE 4. The experimental data are compared with the known literature sources [1, 2].

The results of thermal expansion measurements of heat-conducting gaskets are obtained for the first time. The limits of thermal resistance of new materials are also fixed. The effect of "hysteresis" of the dependence of the height increment of the tested samples on the temperature during heating and cooling processes is found.

- 
1. The fluoroplastics in machine building. Goryainov, A. V., Bozhkov, G. K. and Tikhonova M. S., — M: "mechanical engineering", 1971, p. 233.
  2. Aviation technical reference. Aleksandrov V. G., Mayorov V. A., Pamukov N. P. — Publisher "Transport" Ed. 2nd, 1975, 432 p.