

# **The computer system for temperature and stress monitoring in thick walled elements in power plants**

J. Taler, P. Duda, B. Węglowski, S. Grądziel, W. Zima  
Cracow University of Technology, Cracow, Poland

## **Abstract**

The paper presents a computer system for thermal load monitoring in thick-walled components of boilers during the boiler start-up and shut-down, developed in the Institute of Power and Process Engineering of Cracow University of Technology. The system was manufactured and implemented by Control Process™, company specialised in industrial signal processing. The presented system calculates and displays the following data: instant rate of temperature variations in the walls of the component, thermal stress inside the component wall caused by the temperature gradient over the wall thickness, thermal stress caused by the non-uniform temperature distribution over the drum circumference, stress caused by fluid pressure and the total hoop and longitudinal stress on the inner surface of the thick-walled component.