



INDUSTRIAL INSTITUTE OF AGRICULTURAL ENGINEERING

Department of Research and Development of Foodstuff
Machinery and Devices

Industrial Institute of Agricultural Engineering is the science - research unit operating since 1946. Our work is focused on the creation of technical progress in the field of agricultural machines and equipment, research results implementation in practice as well as the improvement of already produced machines and their components. The Institute has nine research teams, which are in close cooperation. We have a highly qualified science and research personnel, allowing you to make projects with a high scientific level.

Department of Research and Development of Foodstuff Machinery and Devices being a section of the Institute is looking for international partners to cooperate in the implementation of projects on the subjects related to the food industry, in particular:

- machinery and equipment designing for the food industry,
- computer modeling CAD-3D,
- development of design documentation,
- carrying out comprehensive analysis of kinematic and dynamic food industry machinery,
- computer analysis of the construction strength using Finite Element Method,
- study of physico-chemical properties of the finished product (eg food product).

We cooperate with companies which produce machinery and equipment used in the food industry, we also have experience working with scientific units, with whom we conduct research and implement new or improved product on the market. We have a suitable testing stands for designing and carrying out analysis of constructions as well as a laboratory for testing physical properties of the products.

Within the framework of our activities we realized research & development projects and expertises, including:

- project ROW-III 185/2011: *The body for the municipal distribution of foodstuffs with an innovative system of shelves,*
- project ROW-III-199/2011: *Design and implementation for the production of gear pumps for pumping non Newtonian fluids,*
- project ROW-III-251/2012: *Design and implementation for the production of hollowing and cutting device being a part of the technological line for processing peppers,*
- project ROW-III-247/2012: *Design and implementation for the production of the new generation set of cooling devices for confectionery mass,*
- project ROW-III-217/2012: *Body to empty and disinfect containers for municipal waste,*
- project realized within the framework of "Applied Research Program": *The development of technology for producing complete trailers for the transport of refrigerated foods with improved technical characteristics,*
- expertise: The order to check the strength (FEM) of the lid and closing brackets of mixer type XMA54.

Developed test results, besides the report drawn up, have been documented in the writings of the Institute publishing, as well as at conferences, including:

- *Application of computerized image analysis to assess the impact of the parameters of foaming Apple puree on its structure*, Journal of Research and Applications in Agricultural Engineering, Poznań, 2012, Vol.57(1),
- *Kinematic behavior study of virtual model of hollowing and cutting device for processing peppers*, Journal of Research and Applications in Agricultural Engineering, Poznań, 2013, Vol.58(3),
- *Test site gear pumps*, Agricultural, Horticultural and Forest Engineering no 6/2012,
- *Computer analysis of the strength (using FEM) of the construction of gear pumps for pumping non Newtonian fluids*, Food Industry Engineering, Koszalin, 2013, Vol. 4/4-2012(4),
- *Simulation study of flow of cooling liquid in the aspect of construction of the refrigeration module*, National Conference: *The issue of operation in the design of agricultural machinery*, PIMR, Poznań, 4.07.2013.

Companies collaborating with us highly assess our participation in the implementation of scientific and technological progress. This cooperation results in innovative technical solutions of new machinery and equipment to be implemented in national industry. As a evidence of this are, inter alia: the patent application to the Polish Patent Office No P.404847 *Device for processing vegetables, especially peppers* (filing date 25. 07. 2013), utility model No W.122510: *The set of cooling devices for confectionery mass* (filing date 06.11.2013). For carried out activities, the team of Department of Research and Development of Foodstuff Machinery and Devices also received awards and commendations, including:

- A silver medal during the International Warsaw Invention Show IWIS 2013,
- Diploma of the Ministry of Science and Higher Education by 2014,
- The winner of the award of Marshal of Wielkopolska: *i-Wielkopolska-Innovative for Wielkopolska* in 2013.

The effects of scientific and implementation projects are a great promotion for the Institute, which is focused on the work of scientific research with a great emphasis on application.

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