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## A NEW CALIBRATION DEVICE FOR THE CELLULAR EXTRUSION OF THERMOPLASTICS

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In the cellular extrusion process, the extrusion head gives the extrudate the desired cross-section shape and dimensions, taking into account the Barus effect and the shrinkage effect. However, if strict requirements are imposed with regard to cross-section shape and dimensions, it is necessary to fix the shape and dimensions by calibrating the extrudate obtained. Pressure calibration and vacuum calibration are the optimum calibration methods considering the conditions of the cellular extrusion process and the properties of thermoplastics used to produce cellular products. The vacuum and pressure calibrator design combines both of the calibration methods above and meets the requirements for the products. An analysis of literature available and consultations have not led to the finding of any design that would correspond to the research conducted. Therefore, it became necessary to design and make a prototype of the desired calibrator that had to be tested in-house for the purposes of a modernised cellular extrusion processing line. The operation of the calibrator is based on broaching the external surface of the extrudate while cooling the surface with cold water and compressed air. The new calibration device has a block structure. Both parts of the calibrator have parallel conduits next to the longitudinal port and next to conduits linking half-open circulation grooves. The conduits are blanked off at both ends, linked at one end of the prism with a perpendicular conduit that feeds the cooling liquid under pressure, and linked at the other end of the prism with a perpendicular conduit that carries off the liquid after the heat is absorbed. Research on the cellular extrusion of coating, conducted at the Lublin University of Technology-Department of Polymer Processes, focuses on the production process using cellular plastics as well as the properties of products modified with blowing agents. The extrudate obtained can have a solid or cellular structure, can be cellular in its entirety, or can have a cellular core and a solid external surface. The extrusion of products with the use of blowing agents results in new, modified physical and technological properties of cellular products.