

## Fraunhofer Researchers Develop High-Pressure Sensors for Extreme Temperature

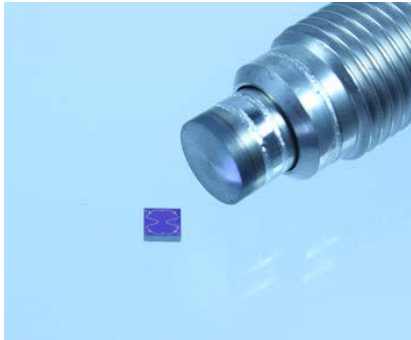


Fig: High temperature sensor for extrusion systems: SOI chips (left) and casing (right).

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Fraunhofer Institute for Reliability and Microintegration (IZM) specializes in industry-oriented applied research. With four technology clusters, Fraunhofer IZM covers the entire spectrum of technologies and services necessary for developing reliable electronics and integrating new technology into applications. Fraunhofer IZM extensively works with the automotive industry, healthcare and industrial electronics and even textile companies.

Fraunhofer IZM has recently conducted a research over high-pressure sensors, which can perform at extreme temperature. Many industrial processes depend on exact pressure gauges. The SOI high-pressure sensors (silicon-on-insulator) developed by the Fraunhofer IZM makes this exact monitoring possible for processes operating at temperatures of up to 400° centigrade. The sensor promises an exceptionally long life as well as precision and efficiency. To keep up with technological requirements, future iterations of the sensors will be designed to withstand temperatures above 600° centigrade. The SOI sensor will mostly be used in extrusion facilities in plastic processing. The process depends on filling moulds completely with the plastic raw material. This is where the SOI comes in: It measures pressure precisely and notifies the system immediately when the injected plastic reaches a certain point. SOI refers to a sensor encased in a layer of silicon dioxide for complete electrical insulation. The outer SOL (Silicon-Over-Layer) on top of that layer includes independent piezo-resistors in the silicon membrane. Traditional MEMS pressure sensors use the layer between the positive and negative doping – the so-called p-n transition – as insulation, allowing a current to pass in one direction only, and can only be used at temperatures up to around 125° centigrade

Kindly in touch with us if you need any additional info on the subject.

Thanks and Regards,

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