



**PRIAMUS Monitor now for Rotary Table Applications**



PRIAMUS Monitor is a widely spread and easy to use data acquisition system for the intelligent monitoring and control of the injection molding process. Up to 16 cavity pressures, cavity temperatures and machine signals per machine are acquired and via Ethernet interface with high frequency transmitted either to a laptop or to an industrial PC. With a maximum cycle time of 25 days the system is practically unlimited and can also be used for quasi static processes such as compression processes for example. Additional plug-in cards like A/D-boards are not necessary anymore.

What the system makes different are the versatile options for process monitoring and process control. Unique and patented for example is the option for automatic switchover to holding pressure with the help of cavity temperature sensors which compensates for viscosity variations during manufacturing. Additional options are used for automatic opening and closing of valve gates in sequential molding depending on the melt front position.

As a new function the system provides monitoring options for rotary table molds by which all measuring signals can be assigned to different groups. The monitoring of the single mold halves is controlled by digital input signals. The sensors for process monitoring can be installed either in both mold halves or in one mold half only. This way only those sensors are being monitored which are actually involved in the molding process, for example at 2-component processes or at the molding around inserts.

The PRIAMUS Monitor system can be used mobile or fix installed whereas the control and alarm signals are connected to the machine by an interface concept. With PRIAMUS Shop Floor Control the system can be networked throughout the plant so that all monitoring data are saved on a central server and displayed on a hall monitor.



**The smallest cavity temperature sensor of the world**



PRIAMUS has developed two new cavity temperature sensors with a front diameter of only 0.6 mm. Type 4009A/4010A may be confidently called the smallest cavity temperature sensor of the world. Type 4011A/4012A is equipped with the same front diameter. This sensor however has a longer measuring body and thus can be used for extremely small mounting proportions.

These miniature sensors are used in many applications such as in optical or medical industry for example, where also for smallest part dimensions an optimum quality must be guaranteed.

Cavity temperature sensors gain more and more importance especially for the open and closed loop control in the injection molding process. In order to react fast enough for real-time controls both, sensors as well as the equivalent electronics must be designed accordingly. The delay time from the melt reaching the sensor until sending a switching signal may not exceed

very few "milliseconds" because otherwise valve gates or core pullers react too late, and the melt fills the cavity without control.

In order to reach these fast reaction times the mass of the sensor body must be kept very small. A cavity temperature sensor in the body of a cavity pressure sensor is usually far too slow to detect the melt front on time. Combined pressure/temperature sensors do also not make much sense because they must be placed separate from each other due to the different measuring principles: cavity pressure always near the gate, and cavity temperature usually near the end of fill or wherever they shall be used for control purposes.

### Miniature cavity pressure sensors – the next generation

Cavity pressure sensors are the basis for mold setup, process monitoring and process control in injection molding. Very often however the dimensions of the standard types available are just too big to fit into the desired locations. Very small cavity pressure sensors could save this problem, but they are difficult to install due to the required accuracy of the bored dimensions. Sensor side load and a loss of sensitivity will result in high variations of the measured signals.



PRIAMUS has developed a new series of miniature cavity pressure sensors with several new features at a time. These very small sensors are protected by a miniature housing and calibrated only after they have been assembled. The patented PRIASAFE™ design protects the sensor from side load sensitivity loss effects which are entirely eliminated. Sensor installation even of very small sensors is therefore much less critical than it used to be, and so are the requirements to the accuracy of the bore dimensions.

In addition a hardware code provides all sensitivity information to adjust the according amplifiers automatically.

This new generation of miniature PRIASAFE™ cavity pressure sensors is available in two versions. One is equipped with an integrated thread for sensor installation and an even smaller version is available for sleeve installation. Due to the compact design in both cases the length of the sensors could be significantly shortened compared to standard sensors.

PRIASAFE™ miniature cavity pressure sensors are not only extremely small, but also safe, secure and easy to use.

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