

Injection Molding Quality Control System (IMQCS)

Injection molding is a very common production technique for making batches of plastic parts. Sometimes, parts crack during the injection molding process. Real time inspection and process feedback becomes an ultimate important issue for the large volume of parts. There was no effective way to check the quality of each part with online or offline testing. Now Physical Acoustics Corporation (PAC) is proud to provide a real time injection molding quality control system which enables every defect part to be picked up during the injection molding process.



An injection molding machine

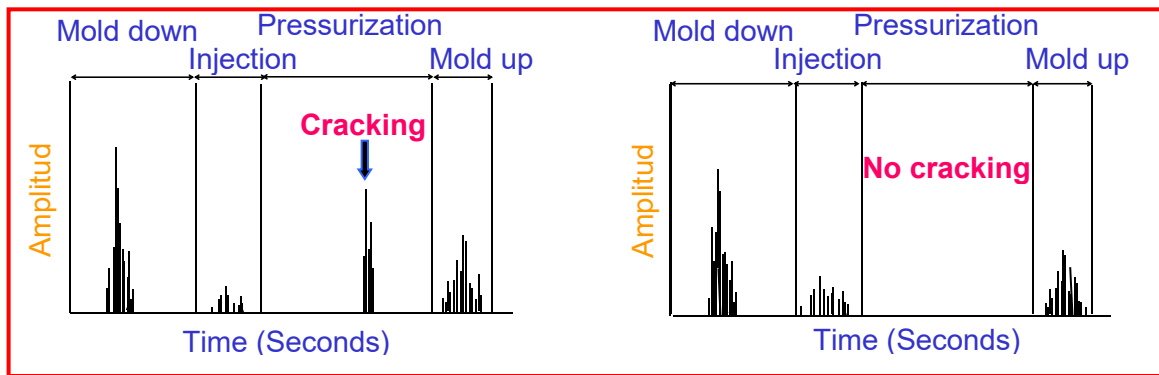
Features of the PAC Injection Molding Quality Control System (PAC-IMQCS):

- Real time computer controlled crack detection during the injection molding process
- Four channels on each PAC-IMQCS for monitoring multiple parts in molds
- One alarm output from each channel to control the injection molding process.
- Controllable trigger to allow synchronization with the injection molding process.
- Touch screen panel for robust application in the workshop environment.
- High frequency sensor and bandpass filter making the system immune from machine vibrations and acoustic noises.
- Intelligent software to allow self adjustment of the monitoring criterion along with the accumulated parts in the production.
- Digital record of the quality status of each part for offline review.
- Quality control for more than 30,000 parts per day.



A PAC-IMQCS

The injection molding quality control system uses multiple acoustic emission (AE) sensors attached to the injection mold. When there is a part crack during the pressurization process, there is a sharp increase in the acoustic emission amplitude or energy in comparison with no cracking process. The PAC-IMQCS detects this abnormal signal and sends an alarm to the injection molding machine to stop the process. Each injection molding process only lasts about 10 seconds and the PAC-IMQCS can control the quality for more than 30,000 parts per day.



Acoustic emission in the injection molding process