

1.9.19. HOW INDUSTRIAL COMPUTER TOMOGRAPHY ACCELERATES PRODUCT DEVELOPMENT IN THE LIGHT METAL CASTING AND INJECTION MOULDING INDUSTRY

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Abstract: Over the past decade Computer Tomography (CT) has become a well recognized tool for rapid product development and quality control in a wide area of industries. Enhancements in X-ray source and detector technologies, CT-scanner system design and data analysis software today offer ready to use solutions for most industries' needs. Especially in light metal and plastic part manufacturing where blank shape parts are produced e.g. in injection moulding, CT has become, citing customers: "the main inspection and measurement tool used in the company". Plastic parts and light metal parts typically can be scanned easily on a modern CT scanner. A single scan, generated in minutes, delivers an amount of information no other technology is able to: all the scanned part's geometry as well as the internal material properties and condition.

Volume Graphics is the pioneer in industrial CT data analysis software. For more than a decade Volume Graphics' software has been enabling their customers to analyze their CT data on standard PC hardware. Using real world examples from customers producing injection moulding parts this presentation will answer the following questions:

1. How do customers use their CT scanner in combination with modern software tools as a coordinate measurement system and at the same time how do they use it to inspect the material condition, e.g. detect and analyze porosity and inclusions or fibre orientations?
2. What level of measurement uncertainty can be reached using modern CT equipment?
3. How the user is able to ensure the reliability of the measurement results?

The presentation will further show how the use of CT dramatically saves cost in the customer's product development process by reducing the number of tool compensation cycles and cycle time.

Finally we would like to give an outlook on the potential of how close CT hard- and software technology is today to moving out of the typical quality control lab setup into the production environment to become a fully automated quality control tool.