

The RobuSinter Research Project Partners

➤ Process robustness optimization for compaction presses in powder metallurgy by adaptive press control



GKN Sinter Metals is the RobuSinter project lead and provides its expertise in powder metallurgy, supply compaction presses and sensor systems for experiments, and utilize global workforce for implementation.



INTEC contributes to the RobuSinter project with its long-standing expertise in compaction press software and low-level hydraulic press control.









UNIBZ (Free University of Bozen)'s faculty of Science and Technology, represented by Professor Angelika Peer, enhances the physical model of the compaction process and develops an adaptive controller for the compaction process.

UNIBZ's faculty of Computer Science, represented by Professor Francesco Ricci, investigates correlations between process parameters and quality characteristics using Machine Learning techniques.



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THE POWDER METAL PROCESS

> POWDER SELECTION

A part of the GKN Powder Metallurgy group, GKN Hoeganaes is a global leader in metal powder production, producing 300,000 tons of powder per year.

> COMPACTION

Metal powder is compacted with high pressure, producing the part with the size and shape of the component. This so called "green part" has enough strength for the next process step.

> SINTERING

The component is heated at a temperature designed to bond particles without changing shape, increasing the part's mechanical strength.

> SIZING/FORGING

If needed, components can be sized to enhance specific tolerances and surface characteristics.

> FINISHED PRODUCT

GKN Sinter Metals globally provides high precision, net shape products for a variety of markets and applications. We produce over 13,000,000 parts daily.

THE ROBUSINTER APPROACH

THE CHALLENGE



Long training time needed for setters



Environmental waste



Variable powder quality



High manual work load

OUR APPROACH

RobuSinter aims at developing control and machine learning methods to model the compaction process and so to define the achieved part quality.

By combining this information with adaptive machine control we target to stabilize the production process automatically.

