RNA Digital Solutions

RNA's digital Bowl Feeders are the feeding technology of tomorrow and unique in the world. With the help of AI and 3D Geometric Deep Learning, we are able to generate a digital twin of the feeding system and simulate it during the design phase.

Before production starts, the sorting solutions we design can be tested, checked and approved by the simulation. Even before the concept is drawn up, we can see whether a component part can be fed and you can be sure that the solution will work. Many of our feed systems are already digitised and can be offered for your application.

Simulation Software

Early detection & elimination of malfunctions. The use of simulation, which is linked to the use of our driving unit program, is possible in connection with special applications.

Selection methodology assessment

Simulating the interaction of components against selection tooling allows an iterative process of adjustment and improvement during the design phase. This can help reduce the development time on the shop floor during the manufacturing stages.

Part jams & blockages

Production downtimes due to part jams and blockages in the feeding system are a highly critical factor. Simulation studies help detect and eliminate these issues very early on in the project.

Tolerance analyses

For parts that are subject to very high tolerances, most serious attention must be paid to the tool design concept. Thanks to simulation, we can understand tolerance issues and define a more robust process window.

Reproducibility

Malfunctions often occur when reproducibility is no longer guaranteed. The cause for this can originate in the drive, the bowl, or the track. Using measurements & analytics we will find out the causal links.

Production changeover

Especially in the pharmaceutical industry, feeding systems are subject to frequent changeovers. To ensure a uniform optimal run across all tools, our simulation can provide valuable support during the concept phase.

Output capacity

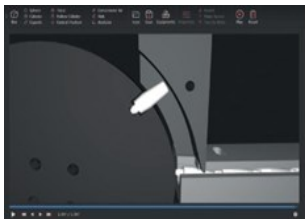
In some industry sectors, machine output capacities of several hundred parts per minute are a common requirement. To achieve this with reliable processes, simulation is the tool of choice for verifying numerous

SIMULATION IN EVERYDAY ENGINEERING

FEEDING SYSTEMS

Evaluate your feeding systems

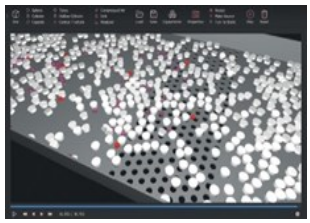
Many feeding technology manufacturers rely on RNA components. They can now use simulation studies to evaluate their designs and digitally adjust the drive units before the system is built. The commissioning time is shortened, and rework is avoided.



SEPARATION

Interface to the separation unit

Customers often buy feeding systems with a free outlet and develop the separation unit themselves. This critical interface between the linear feeder and the customer's separation unit can be reviewed with simulation, reducing the commissioning time on the Shop Floor.



PRODUCT DEVELOPMENT

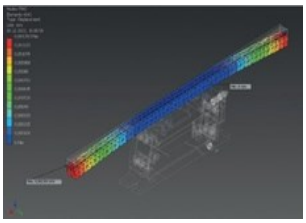
Build less prototypes

Special machine builders are faced with various evaluation tasks when developing new products: Does the parts-pusher work as planned? Is there a parts jam at the interface or do the parts feed in correctly? Can the position be accurately detected with a sensor? All these questions can be answered easily with simulation.

TRAINING MATERIAL

Upgrade your training material

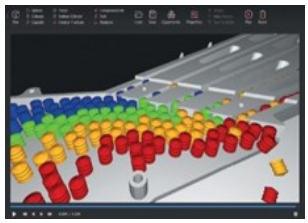
Employees are a companies most valuable asset. In times when it is hard to find skilled personal, it is of utmost importance to educate new colleagues in the best possible way. Simulation is a key contributor when it comes to building up experiences and understanding technical contexts quickly.



FEM

Make sure your design lasts

Downtimes due to broken mechanical components are avoidable. FEM can be used to assess whether the machine can withstand the dynamic loads in everyday production as early as the design phase. The probability of premature failure can thus be minimised.



TOLERANCE ANALYSIS

Increase your process stability

The OEE of the real system depends heavily on the quality of the parts to be handled. Simulation studies can be used to determine which tolerances on the feeding parts are still permissible without impairing the process stability of the feeding system.

How does it work?

01

Project goal

Together we define the objective of the simulation study: product development, separation simulation, drive unit tuning, FEM...

» Goal
» Timeline
» Required data

02

Exchange of data goal

In the second step you send us data: CAD, information on materials, description of motions, tolerances...

» Gather data
» Clean data
» Enrich data

03

Simulation setup

Our engineers set up the simulation model with your data and carry out initial plausibility tests.

» Parameterising
» General conditions
» Plausibility checks

04

Simulation runs

The longest step, depending on the task. We derive specific recommendations for your development.

» Evaluate functionality
» Determine performance
» Derive recommendations

05

Results

The results are discussed with you and a results report is submitted.

» Discussion
» Documentation
» Implementation

Key benefits

Full Repeatability

CNC-milled or 3D-printed for full repeatability

AI Optimisation

AI (Artificial Intelligence) for maximum efficiency

3D Deep Learning

3D (Geometric) Deep Learning for the development of sorting lines

Digital Pre-Testing

Digital pre-testing through simulation of the feeding system

Digital Twin Accuracy

Digital twin for 100% simulation

Material Flexibility

Flexible changeover to a new material

Part Family Feeding

Feeding of different parts of a part family

High-Performance

Superior Feeding System Capabilities