

MODELING

Utilizing Modeling Tools Adds Value

Dennis Group has a diverse set of modeling tools that we implement throughout the phases of a project. Our modeling group has over 25 years of experience using these tools to analyze and optimize our designs in both process and packaging applications.

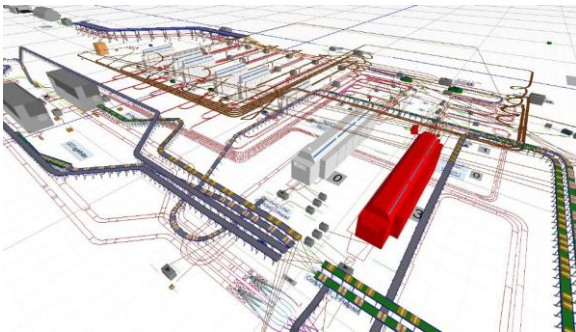
We utilize:

- Production Scheduling
- Spreadsheet Tools
- Flowchart Simulation
- 3D Simulation
- Emulation - Process and Packaging
 - Factory Acceptance Test for Controls and HMI
 - Training

Benefits of modeling include:

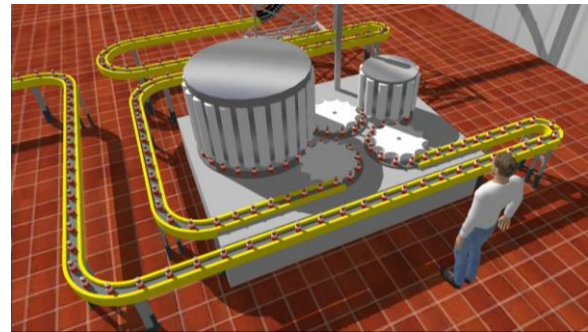
- Drive line design
 - Optimize capital investment
 - Find issues early
 - Optimize the layout
 - Buffer sizing
 - Predict and improve performance and OEE
 - Quantify results
- Build understanding, alignment, and confidence
- Reduce start-up time

Packaging Simulation



We use simulation to size buffers and predict throughput of a line. Our model incorporates machine speeds, machine failures and recoveries, scrap rates, and other inputs affecting line performance. We can examine many different layouts and scenarios to quickly compare and contrast options and identify the best one, given cost restraints and customer desires. We can also use this model to understand the differences in OEE and throughput expected between the options. This model may look very simple or more realistic, but the underlying software is powerful in either case.

Packaging Emulation



In this case, the model looks very much like the actual system. It is dimensionally accurate, and represents conveyor lengths, photoeye and device locations, and other details of the system layout. This model will be connected to the PLC to debug the controls system. A Factory Acceptance Test will be done after the model has been used to fully test the PLC logic and HMI. This software can also be used for detailed simulation in appropriate situations. Utilizing emulation allows us to fully test our controls and minimize startup time on-site.