



MineCycle™ Material Handling

Faster, More Competitive BMH Designs

MineCycle Material Handling is a unique, purpose-built bulk material handling (BMH) conceptual design application that provides an automated design environment encompassing civil, structural, and mechanical disciplines. The software enables EPCs and consultants to complete preliminary designs up to 30 percent faster and with higher quality to deliver more competitive feasibility studies and bids.

Industry-driven Development to Ensure the Capability You Need

Bentley designed and developed MineCycle Material Handling with formal cooperation and direct input from industry leaders including Hatch, PDC, and GHD, to ensure inclusion of the features, capability, and workflows necessary to efficiently perform conceptual design of BMH infrastructure.

Intelligent Conveyor Layout for Accelerated Design

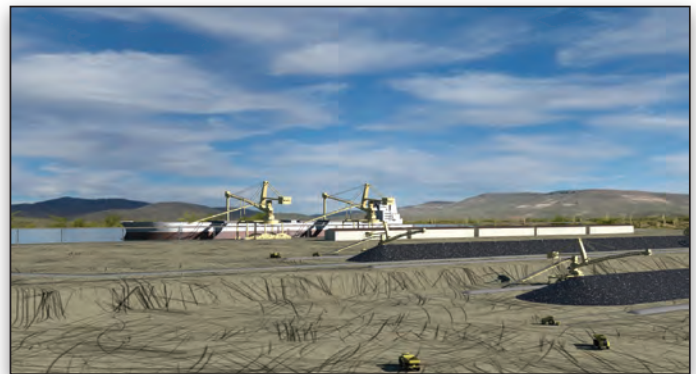
The software provides rule-based conveyor layout tools to govern design parameters including vertical curve, incline constraints, material trajectory, trough angles, burden height, tonnage, and more. These design parameters are considered dynamically during layout of the conveyor path, enabling the designer to make refinements quickly. This intelligent layout saves significant time by eliminating the guess work and iterations found in traditional conceptual design workflows.

Parametric Equipment Library for Rapid Editing

MineCycle Material Handling includes parametric design wizards for all transfer component types such as screening, crushing, and transfer stations. This allows components to be easily placed and then quickly modified using head-up editing tools. Modification of transfer station parameters triggers the software to automatically adjust the connected conveyors to reflect the changes.

Comprehensive Multi-discipline Environment for Speed and Accuracy

Layout is performed in the context of the entire site to enable a clearer understanding of how equipment, conveyors, stockpiles, haul roads, and more function as a system. Multi-discipline capabilities include terrain modeling to optimize energy requirements against the fall of the land, civil tools to model cut and fills, structural tools to place trestles and gantries, and mechanical tools to model transfer station and conveyor behavior. The unified environment enables faster layout and less risk of underbidding or overbidding by eliminating the time and errors in managing a design across many applications.



High-quality 3D renderings generated directly from the design environment enable compelling proposals and improved stakeholder communication.

Scenario Management to Enable Design Optioneering

MineCycle Material Handling includes specific capability to create, compare, and manage multiple design alternatives to enable rapid optimization for cost, footprint, and other owner-operator objectives. Designs are copied and edited using tools to rotate and move entire sections of the plant. Baseline rules and constraints are maintained across alternatives to ensure consistency while automatic bills of material, cut-and-fill estimates, and other reports speed comparisons. These capabilities enable demonstration of a thorough conceptual design process and the relative advantage of the proposed layout.

Integrated 3D Modeling for Efficient, High-quality Documentation

MineCycle Material Handling provides the benefits of an intelligent 3D model without the typical complexity of 3D CAD. Designers can use traditional 2D plan and profile workflows and let the software create the 3D model or arrange 3D equipment models over terrain and let the software create standard 2D views. The 3D model automates production of high-quality 2D drawings, enables the creation of stunning plant fly-throughs and photo-realistic 3D renderings directly from the design environment, and provides a ready-to-detail model. This promotes more compelling, easy to understand proposals and saves time communicating with stakeholders, generating documentation, and transitioning to FEL 3-4.

System Requirements

Refer to the 'Requirements' section of the MineCycle Material Handling ReadMe file:

[www.bentley.com/
MineCycle_Material_Handling-Spec](http://www.bentley.com/MineCycle_Material_Handling-Spec)

Find out about Bentley at: www.bentley.com

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MineCycle™ Material Handling At-A-Glance

Industry-driven Development to Ensure the Capability You Need

- Conveyor consensus interface
- Conveyor design exchange
- Bing Maps integration

Intelligent Conveyor Layout for Accelerated Design

- Point-to-point conveyor placement
- Relation between conveyors
- Place on terrain model
- Editable vertex
- Material trajectory calculation
- Belt design
- Multiple drive configurations
- Multiple take-up configurations
- Gantry
- Cover
- Walkways
- Conveyor tag
- Horizontal and vertical profiles
- 3D modeling
- 2D layout

Parametric Equipment Library for Rapid Editing

- Place on digital terrain model (DTM)
- Relation with conveyors
- Custom equipment can be saved
- Transfer building
- Storage building
- Chutes
- Bins
- Gyrotory crusher
- Cone crusher
- Jaw crusher
- Screener

Comprehensive Multi-discipline Environment for Speed and Accuracy

- Structural components
 - » Take-up station
 - » Trestles

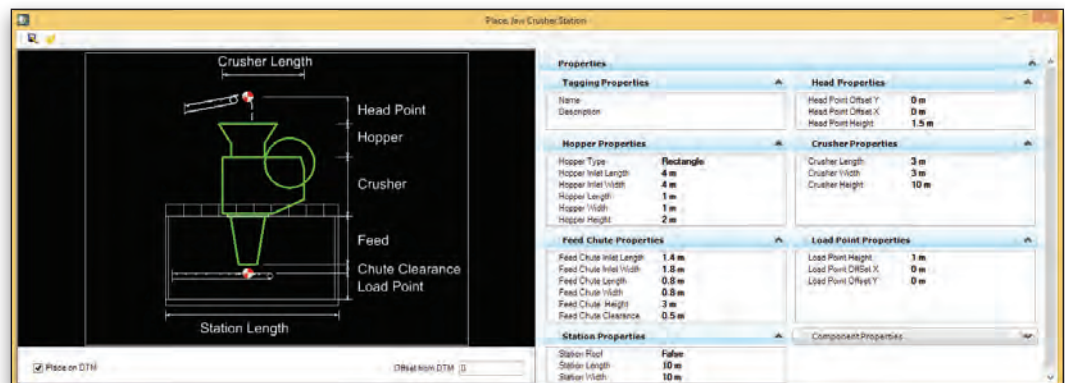
- Earthworks
- Cut-and-fill calculation
- Terrain modeling
 - » From file
 - » ASCII
 - » Point cloud
 - » Update
 - » Slopes
 - » Volumes
- Material definition

Scenario Management to Enable Design Optioneering

- Common base model between scenarios
- Relation between objects
- Dynamic volume calculation
- Footprint calculations
- Easy stockpiles layout
 - » Point stockpile
 - » Linear stockpile
 - » Radial stockpile
- Move
- Copy
- Design updates
- Drag and drop
- MicroStation-based intelligent modeling tools including:
 - » AccuDraw
 - » AccuSnap

Integrated 3D modeling for Efficient, High-quality Documentation

- Rendering tools
- Miscellaneous items placement
- 3D warehouse
- Detailed transfer components
- Structural modeling
- Camera fly-through
- Thematic display
- Roads
- Railways



Transfer station parameters are rapidly edited using design wizards, triggering automatic adjustments to connected conveyors. Common transfer station configurations are saved to a library for easy reuse.