

Hexagon Split

Shrink costs and energy consumption by optimising fragmentation with the most technologically advanced image-analysis techniques

Split uses machine vision systems to measure particle size, a key consideration throughout the comminution cycle, allowing engineers to manage blast design more optimally. Efforts targeted at optimising the blasting process can pay huge dividends downstream, reducing costs and energy consumption.

Energy usage increases at each stage of comminution and accounts for a significant portion of mining operational costs, so it is increasingly scrutinised by cost controllers, CEOs and investors intent on improving productivity. Measuring rock size at different stages of the comminution process offers insight that is relevant throughout the plant. It can shed light on whether equipment is running properly or whether wear and maintenance issues are causing anomalies.

Split's machine-vision systems monitor ore with high-speed cameras, ensuring representative sampling even if material is moving on belt conveyors and tipping trucks. Its qualification algorithm analyses and qualifies captured images and chooses the best and most representative image samples. An AI-based algorithm measures particles sizes in Split's image samples and generates a granulometric rock-size distribution with high accuracy. Split's measurement of actual particle size distribution (PSD) allows mines to develop, validate and continuously improve fragmentation models.

With **Hexagon Split**, the entire comminution process can be connected, from pit to plant, for a unified approach to fragmentation management that reduces wasted energy and money.

Benefits

- Unified fragmentation management, from pit to plant
- No plant stoppage required for gathering samples to analyse
- Efficient development, validation and continuous improvement of fragmentation models
- Camera coverage across the entire comminution process
- Prevention of downstream ore-processing issues
- Clear insights into trends, supporting overall process improvements
- Robust and reliable hardware built for harsh mining conditions

Features

- Ability to monitor particle size at every point along the comminution process
- Potential to feed information to Human Machine Interfaces (HMI) for mobile machines, plant control systems and other mining systems
- Automated particle size analysis
- Machine-vision systems that conduct ore monitoring in high speed and qualify captured images with unique algorithms
- Cameras that can be installed in shovels, haul trucks, crushers and conveyor belts
- Real-time information on particle size, oversize and other characteristics
- Self-cleaning camera for TruckCam and ConveyorCam, enabling continuous data capture in extreme weather and operating conditions

Included Tools:

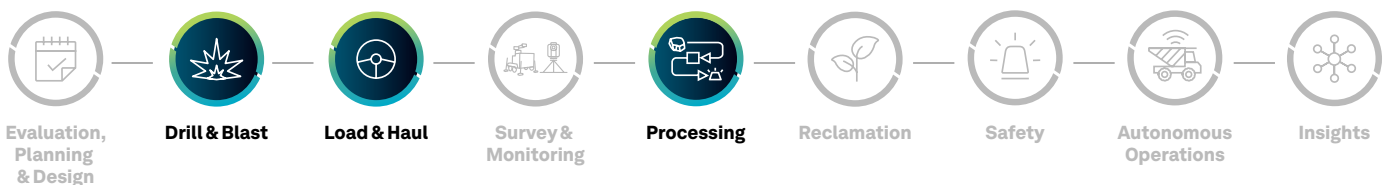
Tools	Key Capabilities
<p>ShovelCam measures fragmentation at the muck pile</p>	<ul style="list-style-type: none"> • Deployed on front-facing equipment • Captures images for each bucket cycle, and measures particle size and oversize • Automatically triggers for images of the muck pile around the bucket • Captured images from the field can be analysed to provide particle size and oversize data to operators
<p>TruckCam measures particle size and oversize on the truck tray</p>	<ul style="list-style-type: none"> • Quantifies material size entering processing • Captured images from cameras placed at the primary crusher dump location can be analysed to provide particle size and oversize data of crusher feed to the operators
<p>ConveyorCam provides automated particle size analysis on conveyor belts</p>	<ul style="list-style-type: none"> • Critical data for processing, including particle size, shape, colour and texture • Helps detect anomalies due to crusher settings, ore type change or screen deck breaks • Up to eight cameras, all running off a single server

While all three components provide automated particle size analysis using image analysis, the algorithm or image capture and selection in each solution differ slightly. For all three, data can be provided to plant control systems and human-machine interface (HMI) as well output to historians and other systems.

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