sisuROCK
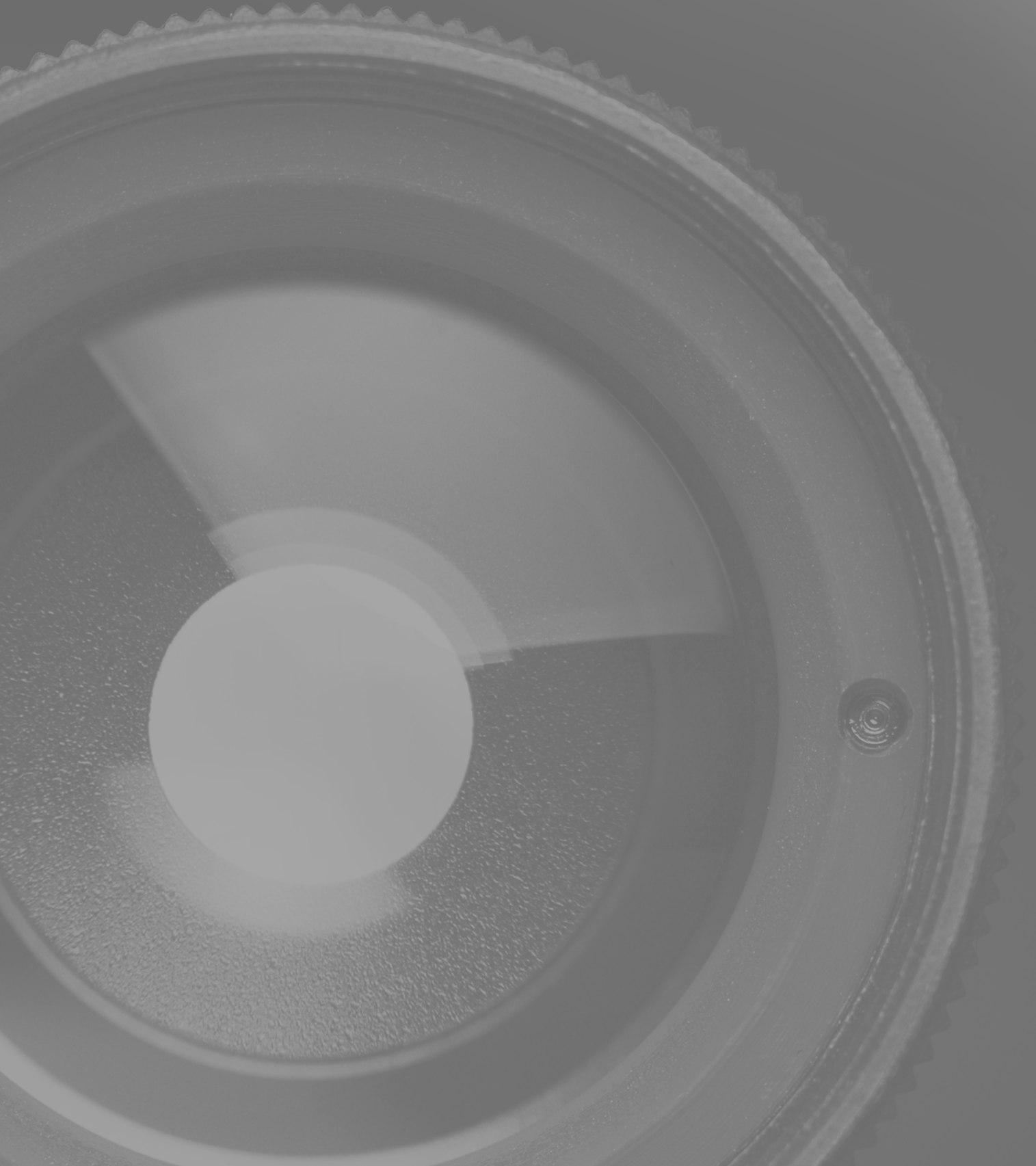
*sisu*ROCK *Hyperspectral Core Logger*

SisuROCK is a fully automated hyperspectral imaging instrument for easy, high speed scanning of drill cores and other geological samples. It is capable of imaging a single drill core in a high resolution mode or a whole core box in a high speed scanning mode. Hyperspectral imaging data of a whole core box is acquired in less than 22 s, highly improving productivity in drill core analysis.
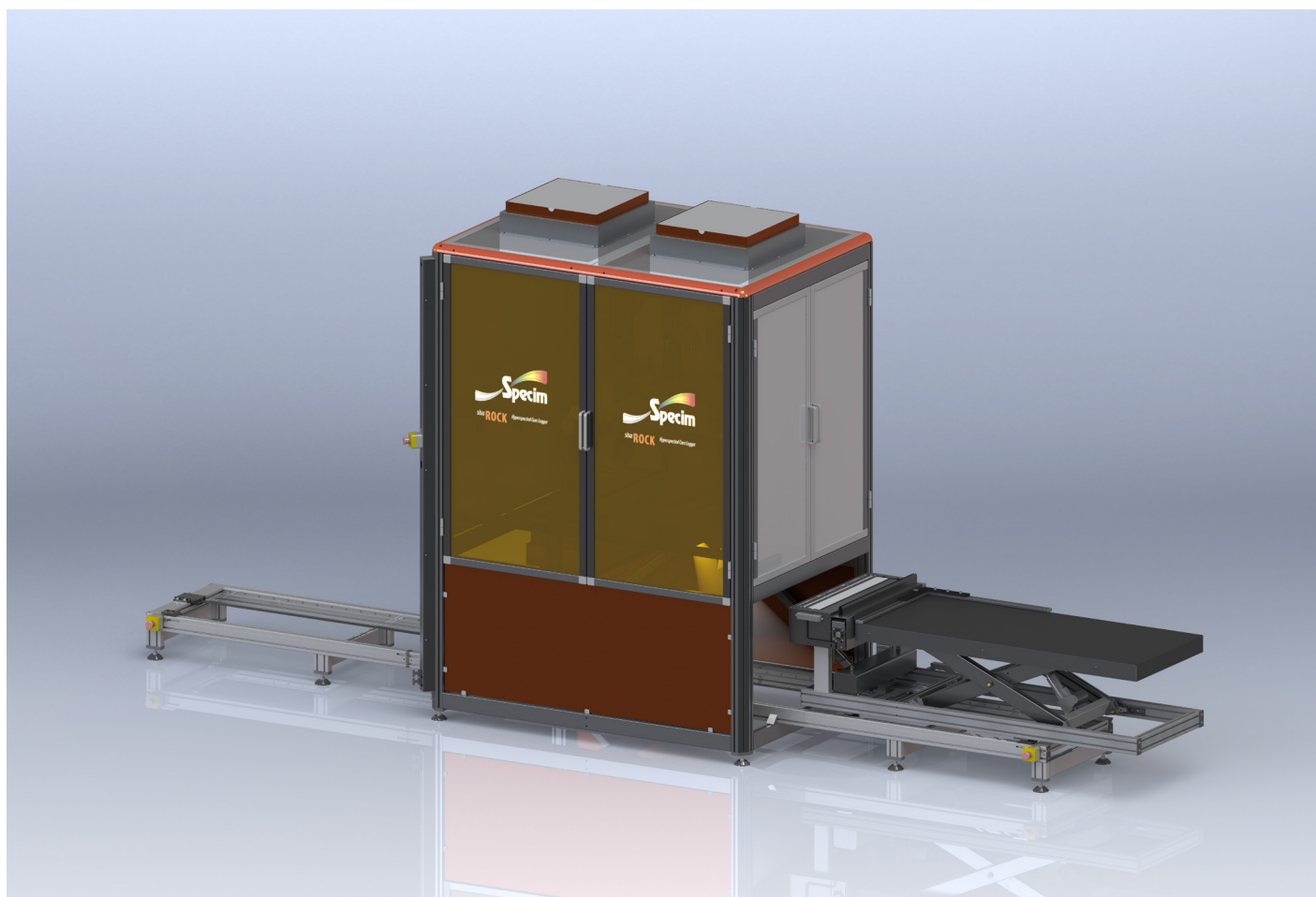
SisuROCK provides an efficient and high throughput production tool for the mining industry and a versatile and flexible analysis tool for geological research applications. SisuROCK applies Specim's state of the art hyperspectral cameras for rapid collection of hyperspectral data from various geological samples.

An average data collection rate with SisuROCK

1 200 meters of core per day . *

HOW SISUROCK WORKS

SisuROCK implements high speed pushbroom hyperspectral imaging and is a fully equipped turnkey solution. It consists of sample illumination units and hyperspectral cameras which collect spectral and spatial information from the cores as the core box is automatically moved through the system. Power supplies and the data acquisition computers are neatly stored in cabinets below

the sample table. All this is built in a rugged instrument which is developed to offer easy, rapid and flexible operation.

SisuROCK is capable of handling samples up to 1.5 m in length, 0.65 m in width and 50 kg in weight. Once the samples are loaded onto the tray, the data acquisition is initialized from the Windows based data acquisition software. Each scan automatically starts with built-in calibration measurements, which include a dark reference and reference image from a known reflectance target. With this calibration data the raw spectral data collected from the samples can be turned into system and operator independent reflectance or absorbance data which includes the mineral specific spectral signatures. The operator can complement each image data file with additional metadata like operator id, core depth, core box number and additional description for instance about the mine or the measurement campaign. Based on mineral specific reflectance data, prediction models to qualify and quantify the measured drill cores and other geological samples can be created.

PERFORMANCE AND PRODUCTIVITY

SisuROCK is capable of providing the data collection rate required in large exploration and industrial projects. Imaging takes place with high spatial resolution for optimal sample structural detail, and with high spectral resolution providing discrimination of mineral spectral signatures. After acquisition of a dataset the quality is checked using a semi-automated QA/QC routine.

OPTIONS FOR VARIOUS APPLICATION REQUIREMENTS

SisuROCK can be equipped with one, two or three cameras. The default camera is Specim's SWIR Spectral Camera. The SWIR range (970-2500nm) is rich in mineral spectral signatures and is therefore the most important spectral range for geological analyses applications. The SWIR camera can be accompanied by either a RGB camera or a VNIR spectral camera and LWIR camera. The RGB camera offers high resolution color imagery when textural information about the samples is required. The VNIR spectral camera provides continuous spectral information over the range 400 - 1 000 nm and it is required in certain applications like hematite or pyroxene detection.

THE VALUE OF SISUROCK

Spectral imaging approach delivers 100% consistent, objective and immediate analysis. This can be achieved with spectral imaging combined with today's processing capabilities. Better mine planning means better knowledge on the mineral content and the distribution of the mineral deposits. Data acquisition of the cores must be done only once. Afterwards data can be analyzed further based on changing requirements and external circumstances. So investing a little bit more one can multiply the value of the core information. Better estimation of the resources guides all onsite activities and operational costs can be optimized.

THERMAL IMAGING OPTION

SisuROCK can be equipped with a thermal imager. This add-on LWIR (8 - 12 µm) hyperspectral camera provides an efficient tool for additional mineral recognition. Together with the SWIR range it covers the majority of the existing minerals. For further information please contact SPECIM.

Hyperspectral data
from total of
17 000 meters of core
was collected just
in two weeks. *

Competitive advantages

- Detailed knowledge on available resources
- Better in critical decision making - process steering
- Optimized operational costs
- Better productivity
- Substantial cost savings
- Lowered energy consumption
- Minimizing environmental impact
- Savings in resources

sisuROCK

*) Exploration project accomplished 2009 in Colombia in association with AngloGold Ashanti.

SISU SYSTEMS

Specim is a world leading company for hyperspectral imaging instruments, from uv through vnir and swir up to lwir (long wave infrared).

We provide ImSpector imaging spectrographs, Spectral Cameras and hyperspectral imaging solutions to a rapidly increasing number of industrial oem customers and a large scientific clientele. Specim's aisa family of airborne hyperspectral sensors provides market leading solutions for remote sensing, from small uav systems to full featured commercial, research and military remote sensing tools.

Our hyperspectral products are known for the highest performance at the lowest budget in the market. They are used in an increasing range of demanding applications like color, Process Analytical Technology (pat), life sciences, chemical imaging, military and security.