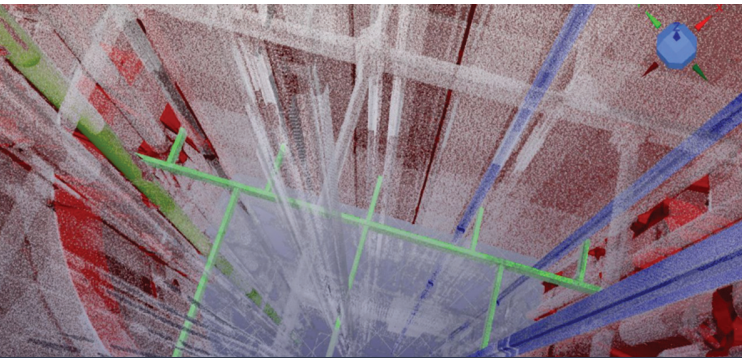




MINE SHAFT AUTOMATED INSPECTION SYSTEM (LIDAR SCANNING AND SHAFT INSPECTOR™ SOFTWARE)



General Description

Holistic hardware-software laser-based digital inspection and mineshaft data management system enhanced by a service component, which includes regular inspection execution and fast processing of results with automated comprehensive reporting tailored to clients' requirements.

Hardware

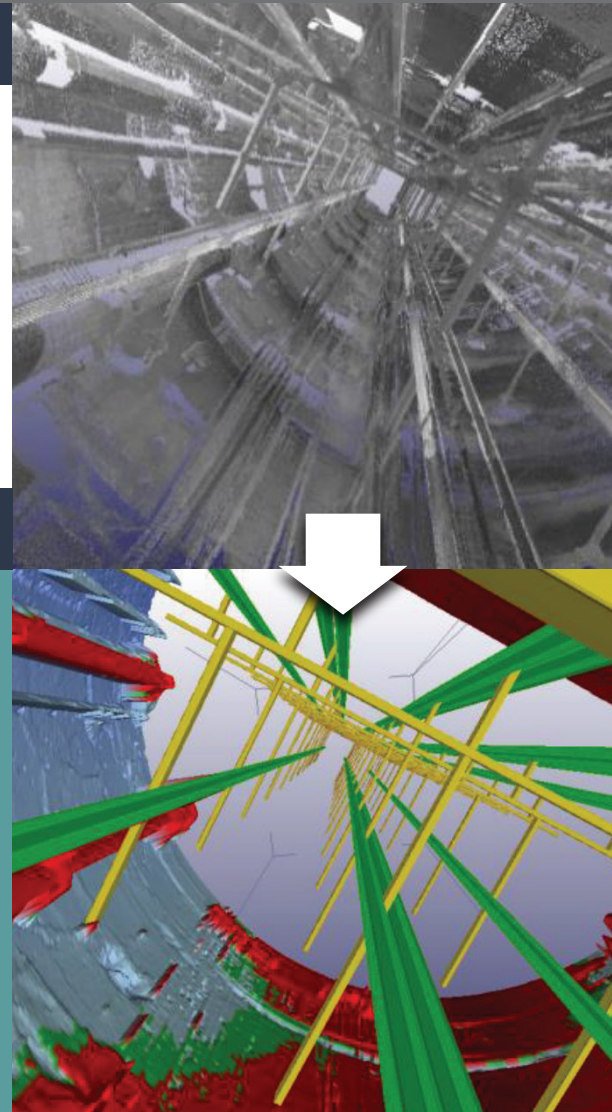
Lightweight (15-20 kg) autonomous remote-controlled modular and versatile system design for fast execution of various legally stipulated shaft inspections with minimum interruptions to hoisting operations. It consists of a few multichannel laser scanners, high-grade fiber-optical gyro for registering trajectory as well as acceleration/deceleration in GPS-denied environments, and a controller mounted on a specially designed multifunctional frame. IP-67 level of protection guarantees reliable operations even in a harsh underground environment.

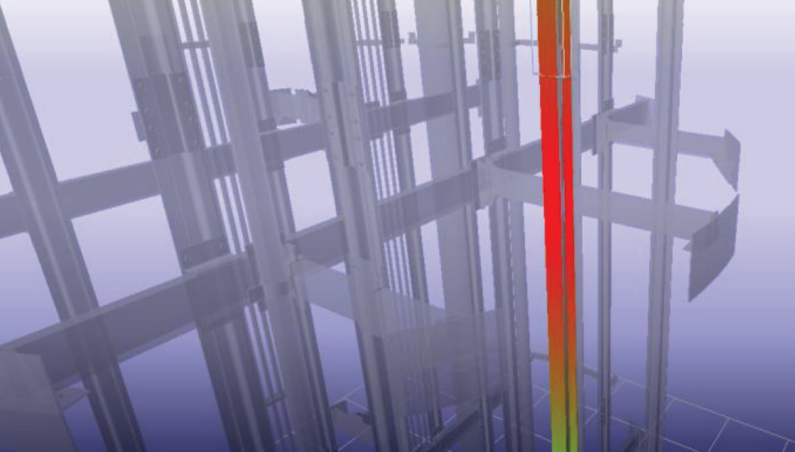
Table: System inspection accuracy

Inspection objects:	Guides	Full inspection local coordinates	Full inspection absolute coordinates
Guide wear, mm	0,5	0,5	0,5
Guide gauge, mm	2	2	2
Guide twisting, mm	2	2	2
Guide alignment (curvature), mm	5	5	5
Lining deformation (circularity), mm	2	2	2
Absolute guide and shaft alignment, mm/km	N/A	N/A	30
Bunton shift, mm	2	2	2
Absolute bunton altitude, mm/km	N/A	N/A	30

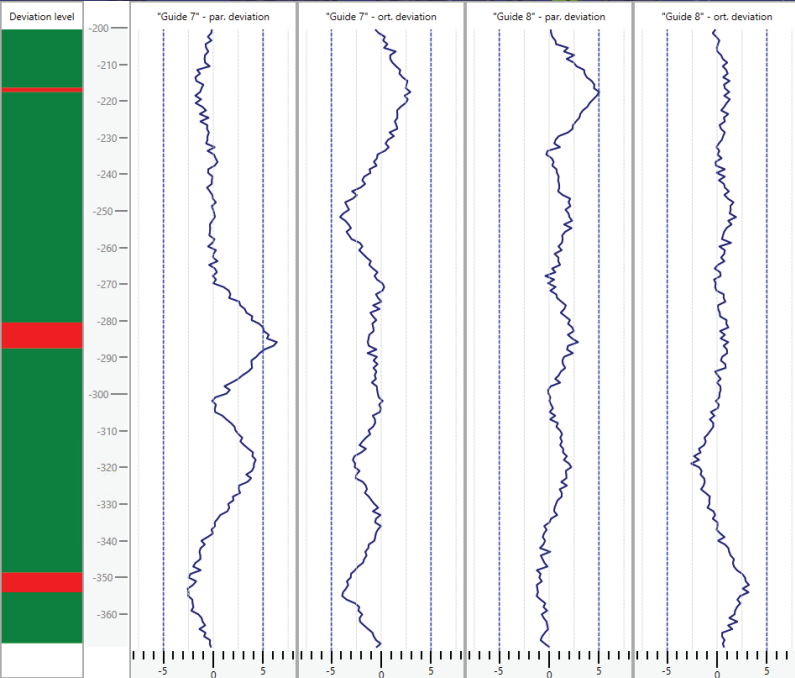
Software

The system software component supports data management and visualization and can be configured according to client's priorities either on premises or in the cloud or outsourced as part of a service provided by a vendor. The database maintains an up-to-date digital twin of a shaft and provides intelligently structured storage of all inspections history, showing all changes that occur during shaft's life and required repairs. Mine engineers can access and visualize the full CAD model of a shaft associated with any past date, including descriptions and visualized labeling of repair and maintenance work executed, shaft modifications, etc. The AI-based analytical part of the software automatically detects, classifies, and highlights defects according to a library of defects and pre-set tolerances, enabling automatic generation of reports and job cards.





- Results of guide profiling are presented in the form of graphic deviations from the axis, as well as the distance between pairs of guides
- Results of the lining profile are presented as sets of horizontal cross-sections with an indication of deviation from the theoretical model
- Deviations above the permissible tolerances are marked on the graphs and 3D models



Data Exchange and Report Generation

The system can wirelessly upload collected data to the supplier's SaaS web portal. Full inspection reports can be downloaded from the portal or automatically emailed to the Shaft Engineer the next day.

Separate structural tests may also be precluded with the use of hi-grade accelerometers as one of system components.

Rock support elements
You can manage the elements of the shaft model and build the shell layers contained these elements.

ID	Name	Type	Bunton L...	Status
2359	Bunton 1_1	0	Not pass	
2359	Bunton 2_1	0	Pass	
2359	Bunton 3_1	0	Pass	
2359	Bunton 4_1	0	Pass	
2359	Bunton 5_1	0	Pass	
2359	Bunton 6_1	0	Not pass	
2359	Bunton 7_1	0	Pass	
2359	Bunton 8_1	0	Pass	
2359	Bunton 9_1	0	Pass	
2360	Guide 1_1	0	Not pass	
2360	Guide 2_1	0	Pass	
2360	Guide 3_1	0	Pass	
2360	Guide 4_1	0	Pass	
2360	Guide 5_1	0	Not pass	
2360	Guide 6_1	0	Pass	
2360	Guide 7_1	0	Pass	
2360	Guide 8_1	0	Pass	
2360	Stairs 1_1	0	Pass	
2360	Floor 1_1	0	Pass	
2361	Mesh 1_1	0	Pass	
2361	Mesh 2_1	0	Pass	

Common properties
Name: Bunton 1_1 Color: A

Bunton N°: 0

Description

Geometry

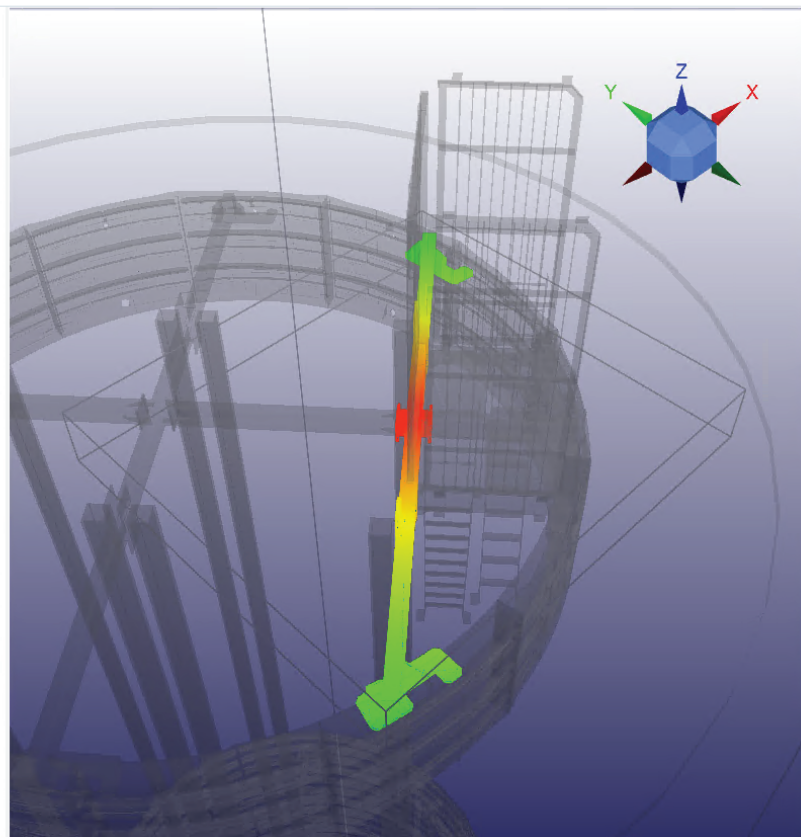
Position checking reports

Date	Maximum Deviation...	Status
2/12/2023 6:06:20 PM	3.96	Pass
7/11/2023 6:08:51 PM	5.78	Pass
9/18/2023 6:09:09 PM	7.35	Not pass

Bunton 1_1_4
Bunton
Column: Distance,mm
Rest: Custom
7.00
4.00
0.00

Spatial reference

Filters
And Or



SightPower Inc.

109 Solera Circle,
Ottawa ON Canada, K1T 0C6
Phone: +1-613-793-5010



SightPower SA (Pty) Ltd.

9 Ambledown Rd, Sunningdale Ridge
Johannesburg, 2192, South Africa
Phone: +27-83-377-4667



www.sight-power.com



info@sight-power.com