



# Programmed productivity

Mine Application (MINA) by DMT



# Software to boost value

For more than thirty years now DMT specialists have developed and offered a full range of custom software solutions for a wealth of applications in both opencast and underground mining. In the course of this continuous, forward-looking development process, those specialists have created highly functional and highly specialised software solutions. They have now been drawn together in the MINA (Mine Application) suite.

MINA software, made by DMT, optimises procedures and processes in mining operations (underground plough operation shown here)



Then, as today, technical and business parameters and targets were in the foreground during programming. Additional demands were for safe, simple and economical handling as well as compatibility with existing software and hardware environments.

Always focussing on customer requirements, the necessary interfaces are included to link engineering needs, data handling and multilingual control. This ensures that users will be able to immediately integrate highly logical and understandable programs into their working environments and use them to achieve the perfect outcome.

In addition to the unsullied quality of the results and the business potentials that can be achieved, additional supplementary benefits include unrestricted availability, prompt deliveries, support capabilities, assurance of performance, and certification as per DIN ISO 9001. In this field, too, the MINA solutions go well beyond the capabilities of conventional software and thus foster value growth in many ways – not only for small and medium-sized enterprises, but for major concerns, as well.

## Solid investments in value

The MINA software suite by DMT joins evolved software expertise with the extensive background of an engineering and consulting company active at global scale. All the way from planning through to processing and closing, almost every field of mining and natural resources processing is supported.



**Longwall<sup>MINA</sup>:**  
Real-time simulation  
of the amount recov-  
ered at the longwall

## Longwall<sup>MINA</sup>

Longwall<sup>MINA</sup> was developed to calculate characteristic values for longwall engineering and to achieve clear depiction of the longwall operations.

### Application areas:

This software is used both in planning for mining operations and as a teaching aid. It includes real time and time-loop schematics for the loading situation and the extraction rate. It also calculates characteristic values relevant to planning.

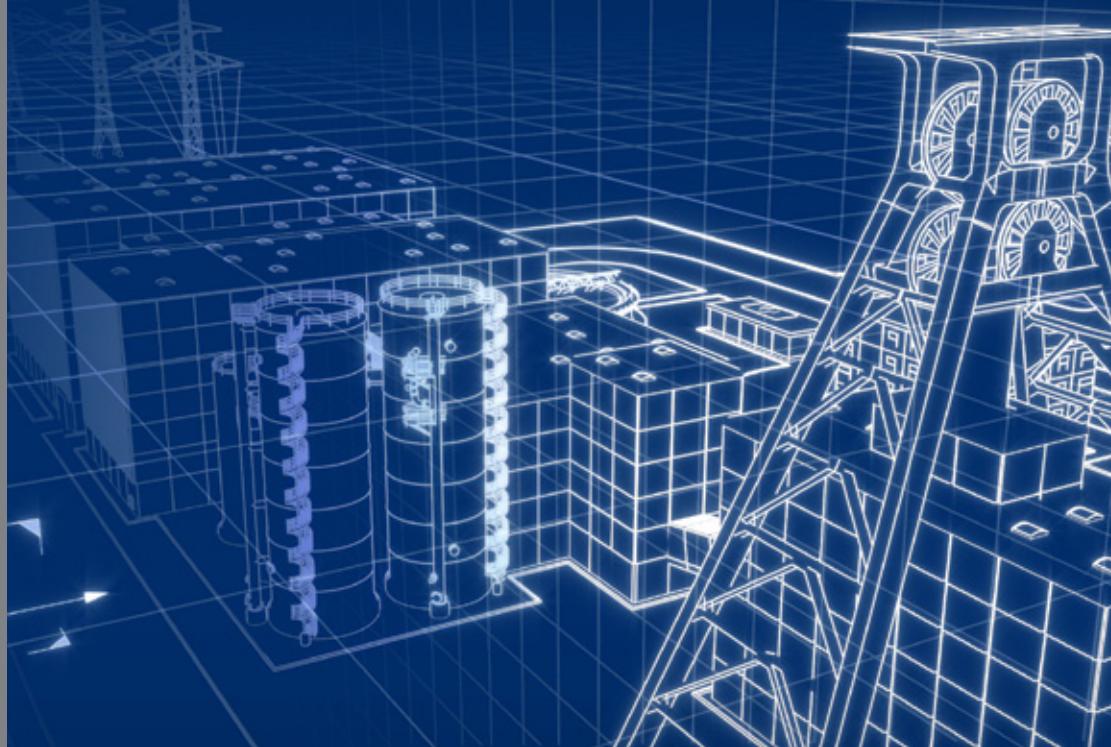
### Performance spectrum:

- Calculation of the loading level for the roadway conveyor, the extraction rate, the face hewing volume per unit of time, and the forces prevailing in the chain.
- Modular structure:
  - Basic – Depiction of the conveyor loading level and the progress of production in the tunnel over time
  - Professional – Expansion with the calculation of conveyor and plough forces and their depiction in force-length-area diagrams. Simulation runs can be placed in storage.
  - Expert – Detailed definition of the mining process; monitoring for discontinuities in tunnel geology

### Advantages:

- Virtual test function for various machinery configurations in advance of actual use
- Error avoidance and risk identification when laying out the tunnel
- Improved utilisation of the longwall equipment by optimising procedures
- Considerable cost reductions
- Increased confidence in planning
- Practice-oriented visual support when training specialists and during sales talks

„Ventilation<sup>MINA</sup>“  
software written by  
DMT for planning  
and calculation of  
ventilation systems



## Ventilation<sup>MINA</sup>

The complexity of ventilation tasks in mines requires systematic planning and monitoring in the interest of safety and technical feasibility.

### Application areas:

Thanks to the Ventilation<sup>MINA</sup> software, all kinds of conduits – including ventilation networks, compressed air grids and other piping networks – can be quickly modelled and the physical properties exactly calculated.

### Performance spectrum:

- Calculation of volumetric flow and pressure distribution
- Taking account of the compressibility of gases (changes in pressure and temperature with increasing depth)
- Registering natural lift
- Fire simulation with predefined or user-defined temperature curve
- Introduction of outside gases such as CO<sub>2</sub>, CH<sub>4</sub> or diesel vehicle exhaust

### Advantages:

- Exact and efficient examination of concepts
- Increase in safety
- Approved by mining authorities in Germany

## Rockburst<sup>MINA</sup>

Especially in coal mining, effective protection against rockburst is of major relevance to safety.

### Application areas:

Rockburst<sup>MINA</sup> is a database application using multiple windows and designed to protect against rockburst during normal operations. Its purpose is to extract the information from drilling logs filled out underground and enter that information in a database. Ultimately the data collected is shown graphically for evaluation purposes.

### Performance spectrum:

- User-friendly graphic interface
- Integration of an Oracle database
- Numerous import and export functions
- Printed reports for drilling logs, graphic evaluation, statistics, personnel data, and depictions of the day's work

### Advantages:

- Capabilities for evaluating the data in storage
- Extensive filter options
- Exchange using GTDB / DUDE data
- Integration of multi-user operating functions

Messquerschnitt / Station [m]: 0.8 1 von 15

Register "Benutzerdefiniert" einblenden

**Info**

Y-Koordinaten	2577433	Auffahrungsmessung
licher Querschnitt [m <sup>2</sup> ]	14.7	<input type="checkbox"/> alle nachtragen
Form des Querschnitts	Kreis	<input type="checkbox"/>

**10 Messungen**

Art der Messung	Messung	Durchbau	Messung	Messung	Messung
Messdatum	03.08.2007	31.07.2007	02.07.2007	13.06.2007	24.05.2007
Streckenhöhe		293	293	293	293
Verbindungsleitung - Firste		174	174	174	174
Verbindungsleitung - Sohle		120	120	120	120
Senktiefe		0	0	0	0
Sohlenbreite		921	921	767	767
Sohlenbreite (Links)					
Sohlenbreite (Rechts)					
Anzahl der Verbolzungen					
Ausbauänderung	keine	keine	keine	keine	keine

Entry of the data measured underground to document deformations in the tunnels

[Benutzerdefiniert](#) | [Standardmessung](#) | [Erweiterte Messung \(links/mitte\)](#) | [Erweiterte Messung \(rechts/oben\)](#) | [Segmentverformung](#) | [Zustand der Verbindungen](#) | [Überlappungen](#)

## Convergence<sup>MINA</sup>

Reliable and up-to-date information on the status of underground tunnels is indispensable to mining operations.

### Application areas:

German mining operations are obliged to implement “operational tunnel monitoring” and Convergence<sup>MINA</sup> records the data and measurements thus acquired. The software then undertakes an automatic evaluation. This gives mining operators quick access to complete and clearly organised information on the tunnels being monitored.

### Performance spectrum:

- Database storage and recovery of recorded data
- Comparison of projected data and data actually found
- Tabular and graphic depictions
- Reports prepared in Rich Text Format

### Advantages:

- Permanent monitoring of the tunnels and analyses of weak points
- Options for immediate responses to deviations
- Measured values are available immediately – or in interim storage – for scientific evaluation

## Hoisting<sup>MINA</sup>

When planning hoisting and inclined haulage equipment, the regulations laid down by regional supervisory agencies will have to be observed.

### Application areas:

Hoisting<sup>MINA</sup> is a software program designed to calculate deceleration and braking in accordance with the current technical requirements (TAS 3.11, 3.12, 3.13) governing hoisting and inclined haulage equipment.

### Performance spectrum:

- Integration of the model formula used for systems with drive sheaves or for drums with up to 2 rope laps
- Integration of the model formula for systems with bobbins (TAS 3.12) as well as calculated proof of the strength of the braking rods (TAS 3.13)
- Automatic generation of reports on individual deceleration calculations

### Advantages:

- Simplified depiction and execution of all specimen calculations for systems incorporating a drive sheave or incorporating a drum with up to two rope laps, for systems with bobbins, as well as calculated proof of brake rod strength
- Adherence to all legal requirements



MINA

# MINE APPLICATION

## **Processing<sup>MINA</sup>**

Processing the product from the mine makes it necessary to manage large flows of materials. This software lets users keep an eye on all the relevant data for the processing operation, all the time.

### **Concept:**

The Processing<sup>MINA</sup> permits automated viscosity checks for quality control purposes and serves to reduce the number of samples to be taken repeatedly during hard coal processing.

### **Performance spectrum:**

- Numerical calculation process based on finely distinguished materials classes
- 18 different equipment classes and a user-definable “free device”
- Consideration of the likelihood of false positive batch results for various devices
- Iterative calculation of materials in the return streams
- Recording the flow diagrams in separate files
- Export function for the device and the material flow configurations, stored in separate files (for later re-use)
- Option for exporting to MS Excel

### **Advantages:**

- Operations: Early adjustment of the processing plant
- Sales: Simplified assembly of products for sale
- Analyses: Inference of the composition of the crude coal based on the output products following processing

You will find additional information at  
[www.dmt.de/mina](http://www.dmt.de/mina)

DMT GmbH & Co. KG  
Mining Service

Am Technologiepark 1  
45307 Essen  
Germany

Phone +49 201 172-1785  
Fax +49 201 172-1880  
bs@dmt.de  
www.dmt.de

Member of TÜV NORD Group

