

.....

ONE SYSTEM MORE GAINS

.....



**UNDERGROUND RAIL HAULAGE
AUTOMATED MINING SYSTEM**

BOMBARDIER
the evolution of mobility

schalke

NMT
Nordic Minesteel Technologies

.....

THREE EXPERTS MOVE **MORE** FOR LESS

.....

Accomplishing more together – our complete system for underground rail transport is a shining example of concentrating expertise and benefitting from synergies.

The efficient movement of freight 24 hours a day, 365 days a year is essential to a modern and productive resource industry.

Specifically designed for industrial and mining applications, Bombardier Transportation, Schalke and Nordic Minesteel Technologies joint solution optimises and maximises the rapid transport of raw materials to enable fully automated, continuous, efficient productivity.



Bombardier Transportation

A global leader for signalling systems, Bombardier Transportation delivers *INTERFLO**, a fully automated train control solution that increases efficiency, capacity and safety on rail routes in the most innovative and cost effective way.



Schalke Eisenhütte Maschinenfabrik (SCHALKE)

As a specialist for safe, reliable, high performance traction units, Schalke provides a range of mining locomotives from 10 to 130 tonnes, as well as service and shunting locomotives.



Nordic Minesteel Technologies (NMT)

NMT specialises in the continuous loading and unloading of rail transportation vehicles. NMT supply mine cars and freight vehicles as well as loading and unloading stations for the system.

*Trademark(s) of Bombardier Inc. or its subsidiaries.



GLOBALLY PROVEN TURNKEY AUTOMATION SOLUTIONS

The collaboration has resulted in a complete system that is unique worldwide with two core advantages: a high degree of automation and robustness.

Automated operation ensures:

- Achieving maximum capacity and movement of ore via moving block functionality and integration with loading and unloading systems
- Fuel savings of up to 15% and minimised wear and tear
- Reduced maintenance costs compared to conventional signalling systems
- Less wayside equipment reduces installation and maintenance costs as well as lowering the risk of theft and vandalism
- Driverless operation to decrease incidents and inefficiencies through human error

Robustness for real 24-hour production

All of the system's components are designed to withstand up to 30 years of continuous operation. The system enables constant, automatic, round-the-clock operation at high speed and maximum capacity.

Benefits:

- Utmost reliability
- Short downtimes
- Low operating and maintenance costs



OUR CUSTOMERS

Australia

Glencore, Mount Isa, GFM expansion
Western Mining Co., Olympic Dam Mine

Canada

Alamos Gold, Young Davidson Mine
Barrick Gold, Hemlo Mine
Compass Minerals Canada, Goderich Mine
DMC, Jansen Mine
Glencore, Onaping and Craig Mine
Goldcorp, Porcupine and Red Lake Gold Mines
HudBay, Trout lake and 777 Mine
Morton Salt Inc., Ojibway Mine
Niobec
Sifto Canada, Goderich Mine
Vale, Birchtree Mine and Thomson Mine

Chile

Codelco, Esmeralda Mine and Teniente 8 Mine

Germany

RAG, Blumenthal / Haard Mine and
Lohberg Osterfeld Mine, Ruhrkohle
Solvay Chemicals, Plant Rail Network

Ghana

AngolaGold Ashanti, Obuasi Mine

Indonesia

PT Freeport, Grasberg Mine, Big Gossan,
DOZ and DMLZ

Kazakhstan

Uzen – Bolashak

REFER

All over the world we have customers
which the three

- Signalling and train
- Mining, service and
- Cars, loading and unloading
steel work, ga



REFERENCES

Customers using the broad portfolio
of experts cover:

Automation systems
Shunting locomotives
Loading station, chutes,
Haulway stages



Mexico

Panamerican, La Colorada Expansion Project
Peñoles, la Cienega Mine and Fresnillo Mine

Mongolia

Oyu Tolgoi, Hugo North Mine

Peru

Compania Minera Milpo, El Porvenir Mine

Russia

Yakovlevsky Iron Ore Mine, Belgorod Region

Spain

Astur Gold, Salave

South Africa

Anglo American Platinum, Bafokeng Rasimone Mine

Sweden

LKAB, Kiruna Mine
Malmbanan
Renstrom and Petiknas Mines
Västerdalsbanan

Switzerland

Rhätische Bahn, rail network in the canton of
Graubünden

Turkey

Çayeli Bakır, Çayeli Mine

USA

Cargill Lansing
Compass Minerals, Cote Blanche
Detroit Salt
Stillwater Mining Company, East Boulder Mine
Intrepid Potash, East Mine
Hecla Mining, Lucky Friday Mine
Freeport-McMoRan, Henderson Mine

.....

SUCCESS IS A MATTER OF TEAMWORK

.....

BOMBARDIER
the evolution of mobility

**Bombardier Transportation
Rail Control Solutions**

Marieviksgatan 29,
Box 470 36
100 74 Stockholm
Sweden

Phone: +46 10 852 00 00

industrial@rail.bombardier.com
www.bombardier.com

schalke

**Schalke Eisenhütte
Maschinenfabrik GmbH**

Am Eickhoffpark 1
44789 Bochum
Germany

Phone: +49 234 975 1102

sales@schalke.eu
www.schalke.eu



**Nordic Minesteel
Technologies**

373 Main Street W.
Unit 1
P1B 2T9 North Bay, Ontario
Canada

Phone: +1 705 474 2777

sales@nordicminesteel.com
www.nordicminesteel.com

www.automatedminingsystem.com