

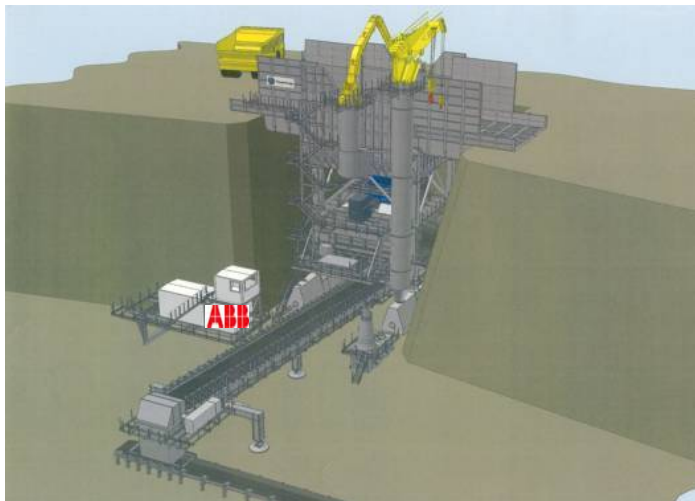


ABB Automation GmbH, Center of Excellence

# Open Pit Mining, Cottbus Germany

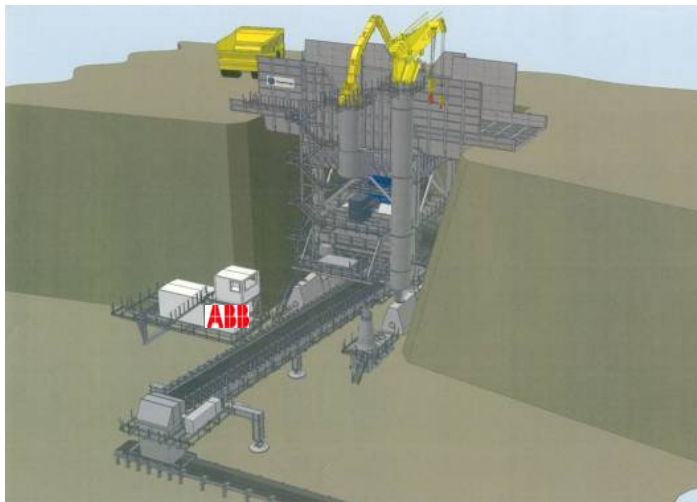
## References

# Semi mobile crusher, Moly mines, Molybdenum mine Australia - Spinifex Ridge



- Spinifex Ridge, Pilbara Region, Western Australia
- OEM: ThyssenKrupp Fördertechnik, Germany  
End user: Moly Mines Ltd, Australia
- Commissioning in 2011
- Mechanical performance data:
  - 1 crusher with discharge conveyor
  - engineered capacity up to 5.100 t/h
  - temperature up to +50°C
- Scope of ABB:
  - Design according to Australian standard
  - Medium voltage
  - Low voltage
  - Control system
  - Frequency converters
  - Transformers
  - E-houses / cabins
  - Field devices
  - Cables and wiring
- Key Features:
  - ABB AC 800M controller system
  - ABB ACS 800 technology

# Semi mobile crusher, Sino Iron ore mine Australia - Cape Preston



- Spinifex Ridge, Pilbara Region, Western Australia
- OEM: ThyssenKrupp Fördertechnik, Germany  
End user: Sino Iron Ltd, Australia
- Commissioning in 2011
- Mechanical performance data:
  - 4 crusher with discharge conveyors
  - engineered capacity up to 5.100 t/h
  - temperature up to +50°C
- Scope of ABB:
  - Design according to Australian standard
  - Medium voltage
  - Low voltage
  - Control system
  - Frequency converters
  - Transformers
  - E-houses / cabins
  - Field devices
  - Cables and wiring
- Key Features:
  - ABB AC 800M controller system
  - ABB ACS 800 technology



# Refurbishment of 2 x SchRs 1200 Excavator

## Bulgaria - Trojanowo 3 & North mine



- Open pit-mine Trojanowo, Bulgaria
- Balgarska Energetika, Sofia, Bulgaria
- End user: Mini Mariza Istok, Radnevo; Bulgaria
- Commissioning in 2009
- Mechanical performance data:
  - 2 SchRs 1200 excavator
  - Digging rate up to 3.600m<sup>3</sup>/h
- Scope of ABB:
  - Medium voltage
  - Low voltage
  - Control system
  - Frequency converters
  - Motors
  - E-Houses, Cabins
  - Field devices
  - Communication system (WLAN)
  - Cables and wiring
  - Engineering and commissioning, Site supervision
- Key features:
  - ABB AC 800F controller system
  - ABB ACS 800 technology
  - WLAN communication, automatic antenna tracking

# Refurbishment of 3 x SchRs 1200 Excavator

## Bulgaria - Trojanowo 1 & North mine



- Open pit-mine Trojanowo, Bulgaria
- Balgarska Energetika, Sofia, Bulgaria
- End user: Mini Mariza Istok, Radnevo; Bulgaria
- Commissioning up to 2011
- Mechanical performance data:
  - 3 SchRs 1200 excavator
  - Digging rate up to 3.900m<sup>3</sup>/h
- Scope of ABB:
  - Medium voltage
  - Low voltage
  - Control system
  - Frequency converters
  - Motors
  - E-Houses, Cabins
  - Field devices
  - Communication system (WLAN)
  - Cables and wiring
  - Engineering and commissioning, Site supervision
- Key features:
  - ABB AC 800F controller system
  - ABB ACS 800 technology
  - WLAN communication, automatic antenna tracking

# Leach Pad System, Copper mine Chile - Gaby

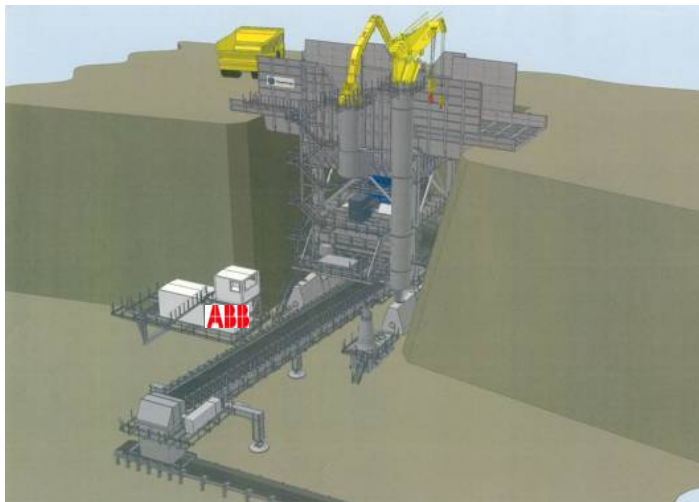


- **Location:** Atacama Desert, Region II Chile
- **OEM:** TAKRAF GmbH, Leipzig, Germany  
**End user:** CODELCO, Chile (Corporación Nacional del Cobre)
- Mechanical performance data:
  - Stacking System:
    - Stacking Bridge, 409 m long, 12 VFC-Travel Drives
    - Overland Conveyor, 2 x 630 kW/ 6,6 kV
    - Stacker/Tripper, 16 VFC-Travel Drives
    - Tripper car, 18 Travel Drives
  - Reclaiming System:
    - Reclaimer Bridges 423 m long, 12 VFC Travel Drives
    - 3 Conveyors, total 5 km long, 5 x 630 kW/ 6,6 kV
    - Reclaimer, 3 VFC Travel Drives
    - Hopper car, 6 VFC Travel Drives
    - Tripper car, 4 VFC Travel Drives
    - Spreader, 3 VFC Travel Drives, 2 VFC Slewing Gear, 2 Conveyors
- Scope of ABB:
  - Design according to NEMA/ANSI Standards
  - 12 Electrical E-Houses (Container)
  - Medium voltage (partly Metal Glad)
  - Low voltage (MCC and LV Switch Gears, 0,69; 0,4 kV)
  - Control system AC800M + Panels, Frequency converters (ACS800),
  - Air Condition and Heating, Fire Extinguishing System(FM200)
  - 2 Operators Cabins
  - Transformers, Capacitors, Field devices, Communication system (WLAN), Cables and wiring
  - Engineering, Assistance Erection, Commissioning, Performance Tests
- Key features:
  - **ABB AC 800M controller system**
  - **ABB ACS 800 technology**
  - **WLAN data communication / Monitoring**



# Semi mobile crusher, Iron ore mine

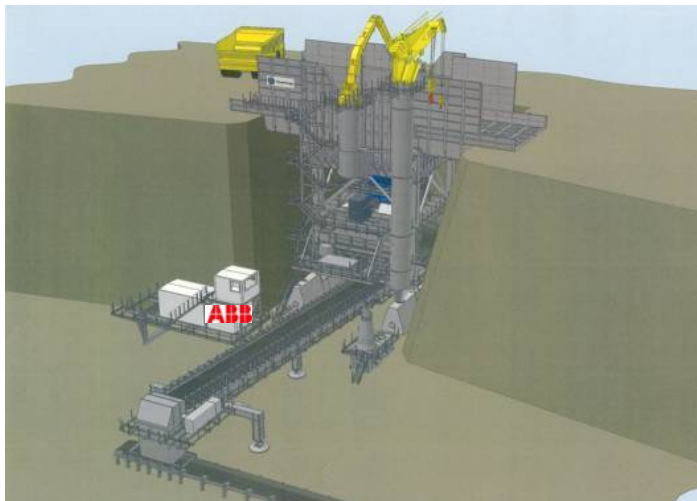
## China - Taigang I & II



- Taiyuan, China
- OEM: ThyssenKrupp Fördertechnik, Germany  
End user: Taiyuan Iron & Steel Co. Ltd. - **TISCO**
- Commissioning in 2011
- Mechanical performance data:
  - 2 crusher with discharge conveyor
  - engineered capacity up to 7.200 t/h
  - temperature up to -40°C
- Scope of ABB:
  - Design, engineering and delivery
  - Medium voltage
  - Low voltage
  - Control system
  - Frequency converters
  - Transformers
  - E-houses / cabins
  - Field devices
  - Cables and wiring
- Key Features:
  - ABB AC 800M controller system
  - ABB ACS 800 technology

# Semi mobile crusher, Iron ore mine

## China - Tanggang I&II



- Tangshan, China
- OEM: ThyssenKrupp Fördertechnik, Germany  
End user: Sijiajing Iron Ore Mine of Hebei Iron & Steel Group Mining Co. Ltd
- Commissioning in 2011
- Mechanical performance data:
  - 4 crusher with discharge conveyor
  - engineered capacity up to 7.300 t/h
  - temperature range -40°C up to +40°C
- Scope of ABB:
  - Design, engineering and delivery
  - Medium voltage
  - Low voltage
  - Control system
  - Frequency converters
  - Transformers
  - E-houses / cabins
  - Field devices
  - Cables and wiring
- Key Features:
  - ABB AC 800M controller system
  - ABB ACS 800 technology



# Open pit mine

## Hungary - Bükkabrany



- Open Pit mine Bükkabrany, Hungary
- OEM: SANDVIK materials handling, Austria  
End user: MATRA Kraftwerk G. AG, Hungary
- Commissioning in 2009
- Mechanical performance data:
  - 1 bucket wheel excavator
  - 1 Beltwagon
  - engineered capacity up to 6000t/h
  - total transshipment capacity 12mt/y
- Scope of ABB:
  - Medium voltage
  - Low voltage
  - Control system
  - Frequency converters
  - Transformers
  - cabins, air conditioning
  - lightings and socket outlets
- Sensors, Cables and wiring
- Key Features:
  - ABB AC 800M controller system
  - ABB ACS 800 technology

# Refurbishment of the SRs 1300 Excavator

## Kosovo - Sibovc West Open-Pit Mine



- Open pit-mine Sibovc West, Kosovo
- Consortium TAKRAF GmbH, Leipzig, Germany & ABB  
End user: KEK, Republic of Kosovo
- Mechanical performance data:
  - 1 SRs 1300 excavator
  - 1 loading unit
  - 1 hopper car
- Scope of ABB:
  - Medium voltage
  - Low voltage
  - Control system
  - Frequency converters, Motors
  - Transformers
  - Cabins
  - Field devices
  - Communication system (WLAN)
  - Cables and wiring
  - Engineering, Dismantling, Erection
  - Commissioning and tests
- Key features:
  - ABB AC 800F controller system
  - ABB ACS 800 technology
  - WLAN communication

# New Mining Field Equipment – BWE + Spreader Macedonia - Brod Gneotino



- Brod Gneotino Mine Field, Macedonia
- OEM: Takraf GmbH Leipzig, Germany  
End user: ELEM JSC Macedonian Power Plants
- Commissioning in 2009 - 2010
- Mechanical performance data:
  - 1 Bucket Wheel Excavator (Compact style)
  - 1 Spreader
  - Capacity up to 5.500m<sup>3</sup>/h
- Scope of ABB:
  - Medium voltage
  - Low voltage
  - Control system
  - Frequency converters
  - Local service
  - Transformers
  - E-houses / cabins
  - Sensors
  - Cables and wiring
- Key Features:
  - ABB ACS 800 technology



# Coal Terminal, Port Russia - Wanino



- Wanino Port, Siberia, Russia
- OEM: Takraf GmbH Leipzig, Germany  
End user: Daltransugol SUEK, Russia
- Commissioning in 2009
- Mechanical performance data:
  - 1 crusher
  - 3 stockpile machines
  - 2 shiploaders
  - 15 conveyors
  - engineered capacity up to 3.500t/h
  - total transshipment capacity 12mt/y
  - temperatures up to -40°C
- Scope of ABB:
  - Plant overview / energy distribution
  - Medium voltage
  - Low voltage
  - Control system
  - Frequency converters
  - Local service
  - Transformers, E-houses, cabins, Sensors
  - Cables and wiring
- Key Features:
  - Central control room with ABB AC 800F controller system
  - ABB ACS 800 technology

# Overburden System

## Turkey - Çöllolar Mine Field



- Çöllolar Mine Field, Turkey
- OEM: ThyssenKrupp Fördertechnik GmbH, Germany  
End user: PARK Teknik, Turkey
- Realisation and Commissioning until 2011
- Mechanical performance data:
  - 2 pcs. Truck Dump Stations (year 2009)
  - 2 pcs. Truck Dump Stations (year 2010)
  - 3 pcs. Spreader (year 2010 – 2011)
  - 3 pcs. Tripper Cars (year 2010 - 2011)
  - engineered capacity per TDS up to 5.600m<sup>3</sup>/h
- Scope of ABB:
  - Medium voltage
  - Low voltage
  - Control & visualisation system
  - Frequency converters
  - Transformers
  - E-houses and cabins
  - Field devices
  - Cables and wiring
  - Cable reeling drums
- Key Features:
  - ABB ACS 800 technology

# Bucket Wheel Excavator SRs2000

## Serbia - Drmno



- Open cast mine Drmno, Serbia
- OEM: Takraf GmbH Leipzig, Germany  
End user: Public Enterprise Electric Power Industry of Serbia (EPS)
- Commissioning in 2009
- Mechanical performance data:
  - 1 Bucket Wheel Excavator
  - engineered capacity up to 6.600m<sup>3</sup>/h
- Scope of ABB:
  - Plant overview / energy distribution
  - Medium voltage
  - Low voltage
  - Control system
  - Frequency converters and motors
  - Local service
  - Cable reeling drum
  - Transformers
  - E-houses / cabins
  - Video system and intercom, Field devices
  - Cables and wiring
- Key Features:
  - ABB AC 800F controller system
  - ABB ACS 800 technology



# Overburden Belt Conveyor System & CCR Serbia - Open-Pit Mine Tamnava West



- Open pit-mine Tamnava West, Serbia
- Contractor: FAM GmbH, Magdeburg, Germany  
End user: EPS, Republic of Serbia
- Mechanical performance data:
  - 5 pcs 2000mm belt drive stations with return station
  - 1 tripper car
  - 2 hopper cars
- Scope of ABB:
  - Medium voltage switchgears
  - Low voltage switchgears
  - Control system
  - Frequency converters, Motors 1000kW
  - Transformers
  - Containers, Field devices
  - Communication system (WLAN, VIDEO, Radio, Intercom)
  - Cables and wiring
  - Engineering, Supervision, Erection
  - Commissioning and tests
- Key features:
  - ABB AC 800F controller system
  - ABB ACS 800 technology
  - Central control room (CCR) with 800xA for > 7.500 I/O's
  - 4 Operator workplaces, 2 Service workplaces
  - Optimized belt speed regulation (OBS)
  - WLAN data communication

# Spreader A<sub>2</sub>RsB 8500.60.1

## Serbia - Open-Pit Mine Tamnava West



- Open pit-mine Tamnava West, Serbia
- Contractor: TAKRAF GmbH, Leipzig, Germany  
End user: EPS, Republic of Serbia
- Mechanical performance data:
  - 1 Spreader with capacity up to 8.500m<sup>3</sup>/h
- Scope of ABB:
  - Medium voltage switchgears
  - Low voltage switchgears
  - Control system
  - Frequency converters
  - Motors
  - Transformers
  - Containers, operator cabins
  - Reeling cable drum
  - Field devices
  - Communication system (WLAN, VIDEO, Radio, Intercom)
  - Cables and wiring
  - Engineering, Supervision, Erection
  - Commissioning and tests
- Key features:
  - ABB AC 800F controller system
  - ABB ACS 800 technology
  - WLAN data communication
  - Radio interlocking to belt conveyor stations

# Overall Power Supply System

## Serbia - Open-Pit Mine Tamnava West



- Open pit-mine Tamnava West, Serbia
- Contractor = End user: EPS, Republic of Serbia
- Electrical performance data:
  - 1 Transformer substation 35/20kV with power demand of 12.240kW as compact container solution
  - 1 Transformer 110/35kV with 31,5 MVA
  - 1 Transformer 35/20kV with 8 MVA
  - 8000m optical cable network along overhead lines
- Scope of ABB:
  - Medium voltage switchgears
  - Low voltage switchgears
  - Cable reeling storage drums
  - Control system
  - Transformers
  - Container
  - Field devices
  - Communication system (Phone, Radio, Intercom)
  - Cables and wiring
  - Engineering, Supervision, Erection
  - Commissioning and tests
- Key features:
  - ABB AC 800M controller system
  - data transfer to Central control room (CCR) with 800xA
  - Open Rail Network
  - Remote control of 5 transformer substations from the central control room (CCR)



# Movable Shifting Devices

## Serbia - Open-Pit Mine Tamnava West



- Open pit-mine Tamnava West, Serbia
- Contractor: TAKRAF GmbH, Leipzig, Germany  
End user: EPS, Republic of Serbia
- Mechanical performance data:
  - 2 Movable shifting devices
- Scope of ABB:
  - Medium voltage switchgears
  - Low voltage switchgears
  - Control system
  - Frequency converters
  - Motors 1000 kW
  - Transformers
  - Containers, operator cabins
  - Field devices
  - Communication system (WLAN, VIDEO, Radio, Intercom)
  - Cables and wiring
  - Engineering, Supervision, Erection
  - Commissioning and tests
- Key features:
  - ABB AC 800F controller system
  - ABB ACS 800 technology
  - WLAN data communication

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