CoE Open-pit Mining Cottbus

ECOSS
Electronic compact-starter for
wound rotor drives
ECOSS
Controlled and safe start-up

ECOSS can be used for any applications, in which slip-ring motors function as drive movers.

- Conveyor belts
- Fans
- Crusher and mills
- Mixers
- Agitators

**Power range**
Drives with slip-ring motors in a power range up to approx. 1500kW
ECOSS
Belt conveyor application
ECOSS
Overburden conveyor bridge application
ECOSS
Overburden conveyor bridge application
Start up with Binary – Coded Starter

- Resistors short circuit by contactors
- Mechanical load by torque peaks
- Difficult forecast if another start is possible
- Loaded contactors cause maintenance
- Control functionality is limited
ECOSS
The advantages for the user at a glance

- Stepless, controlled start-up
  - No torque peaks
  - Less wear and mechanical loading
  - Longer lifetime of drives and motors
  - Different start-up procedures possible

- Just one contactor and one resistor necessary
  - Reduced maintenance
  - Construction of the resistor from the same elements
  - Good forecast if another start is possible

- Integration of the starter in modern communication networks
  - Modern control networks through coupling via PROFIBUS
  - Diagnostic and parameterization system DriveWindow of ABB
ECOSS
Method of operation

- Rectification of rotor current
- Short circuit of the starting resistor by an IGBT
- Stepless variation of the resistor by ON duration of the IGBT
- Closing of short-circuit contactor at the end of the starting procedure
- Start up control by RDCU-Board
ECOSS
Technical data

- **Power data**
  - Power range: up to 1500kW
  - Max. rotor starting current: 800A
  - Max. rotor standstill voltage: 1700V

- **Environmental conditions**
  - Ambient temperature range: -20°C…+40°C

- **Monitoring**
  - Overtemperatures (resistors and IGBT)
  - Interior temperature of control cabinet
  - Overcurrent (rotor current and IGBT current)
  - Overvoltage DC-Circuit
  - Hardware (short-circuit contactor, fan, I/O Modules, miniature circuit-breaker)
ECOSS
Design Cabinet
ECOSS
Design Resistors
Example of design
ECOSS cabinet and for cabinet for the installation of the resistors. Up to five cabinets can be added depending on the application case.
Example of design
ECOSS version with two, three and five cabinets for the installation of the resistors.