Success Story:
Regenerative Conveyor Belt
Australia

Regenerative Conveyor Belt | Australia

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CARRARO GROUP

➢ **General description: Rail unloader – Conveyor belt**

Wagons full of coal reach the unloading station. The coal is unloaded into an underground hopper and is conveyed above ground on a 300m rail (controlled by a 500kW motor), which unloads it onto the main unloader.

➢ **Location:** Newcastle (NSW) Australia

➢ **Technical Specification:**

➢ Length 1st conveyor: 300m
➢ Length 2nd conveyor: 5 Km
➢ N.3 AC motors 900kW 50Hz @ 690Vac
➢ N.1 AC motor 500kW 50Hz @ 690Vac
➢ Conveyor belt speed: 5m/s

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➢ Wagons full of coal reach the unloading station. The coal is unloaded into an underground conveyor screw…

➢ …where, through a 300m conveyor (one 500 kW motor) is conveyed at the surface level and sent to the main conveyor belt.

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➢ The 900kW motors control the 5km unloader-which conveys the coal to the thermal power station.

➢ Each conveyor is driven by 2 motors in master-slave connection. One 900 kW motor in the head and one in the tail; the communication between inverters and PLC is controlled via Ethernet.

- ➢ All motors are driven by **SINUS PENTA inverter** using the F.O.C. algorithm.

- ➢ The motor inverters are DC supplied by as many regenerative inverters:
- ✓ N.3 SINUS PENTA 0831
- ✓ N.1 SINUS-PENTA 0457

- ➢ **PENTA-RGN** inverters of the same sizes.

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➢ Each motor inverter is equipped with an Ethernet card for supervision purposes only.

➢ The PLC sends hardware commands and a hardware reference.

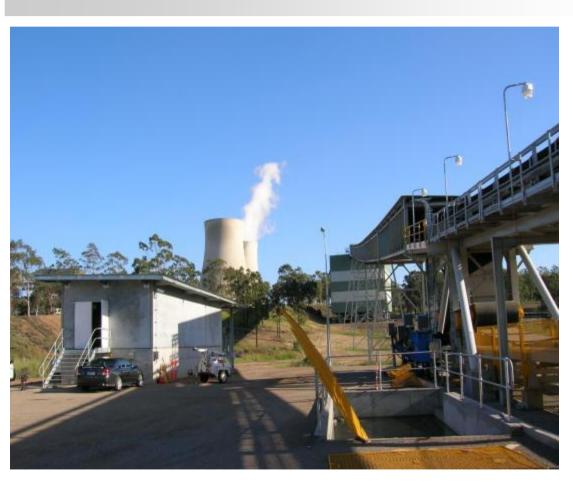**900 kW Master-Slave Motors**

The 5 km route

Thermoelectric Power Plant / Benefits:

- ✓ All motors are managed and controlled by 3 SINUS PENTA in FOC mode.

- ✓ The complete system is a regenerative system. All drives can regenerate into the net.

- ✓ The motor's inverters (N. 3 0831 and N.1 0457) are supplied and connected to DC BUS through the Regenerative inverters of the same size.

- ✓ All drives are equipped with an Ethernet card.

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