

ABB Drives for Cement Medium voltage drives for energy savings and process improvements



Variable speed drives in cement production process



Raw Material Extraction/Crushing





Raw Material Grinding



Courtesy of Polysius



Clinker production







Rotary Kiln



Critical application

- In the past typical DC drive application, now AC Drive is preferred due to robustness and easy maintenance.
- Typical power range 250 kW 1500 kW
- Very high starting torque (250%)
- Constant torque
- High control accuracy
- Wide speed range
- 45 to 50° C ambient temp.
- Solved Problems:
 - High starting torque requirement
 - Accurate speed control required
 - Minimal maintenance required
- Customer's benefits:
 - Accurate speed control
 - Reliable start under all conditions
 - Consistent product quality
 - Reduced maintenance costs





Final Additions and Clinker Grinding





ABB Drives for cement

Crushing	Primary and secondary crushers
Material handling	Raw material and clinker conveyors
Grinding	Grinding mills, raw mills, vertical mills, cement mills
Clinker production	Induced draft fans, rotary kilns, preheated tower fans, kiln gas fans, cooler exhaust fans
Other applications	Baghouse fans, slurry pumps

Energy consumption at a cement plant

Proportion of electrical energy used (%)

 Finish grinding 	38
 Raw grinding 	24
 Burning and cooling 	22
 Homogenisation 	6
 Packing and loading 	5
 Crushing and pre-homogenisation 	5

- Cement plants are large consumers of electrical power
- Cement producer targets is less than 100 kWh/ton



Benefits of ABB drives in cement

Controlling processes with variable speed drives results in the following benefits:

- Optimized production quality & output
- Increased process reliability
- Reduced kWh/ton cement
- Reduced CO₂ emissions
- Minimized wear & tear



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