



Glossary

Autogenous grinding: An autogenous mill uses large pieces of ore to grind smaller pieces in a large rotating drum. The mill and its gearless drive is one of industry's largest installations (the ring motor is almost 20 meters high) and one of the pivotal applications in a concentrator plant. Advanced technology converts brute strength into high productivity as ore is reduced to small particles.

Concentrate: A mining product with a higher concentration of economically valuable minerals than the ore extracted from the mine. The copper concentrate produced at Aitik contains about 27 percent copper.

Concentrator: A plant in which ore is processed mechanically and/or chemically to produce a concentrate of the valuable minerals.

Harmonics: Generally, harmonics are oscillations in the base power frequency. In electrical AC systems, the base frequency is typically 50 or 60 Hertz (Hz) and harmonics occur in multiples of this, for example 100 Hz, 150 Hz, 200 Hz, etc. where the base frequency is 50 Hz. Harmonics occur whenever there is a disturbance of the voltage or current. The problem with harmonics is that electrical devices may react differently when exposed to a different frequency than the one they are designed for, which may cause damage. Harmonics are an increasing problem in power systems as most power electronics solutions cause harmonics. Harmonics can be reduced by the use of power filters.

Switchgear: Equipment used to control, protect, and regulate the flow of electrical power in a high-voltage transmission network as well as in medium- and low-voltage distribution networks. Switchgear can be associated with any electrical equipment that might need to be isolated for fault correction or for maintenance purposes. The main components of switchgear are circuit breakers, which interrupt current to protect electrical equipment from excessive current. The terms gas- and air-insulated switchgear (GIS and AIS) refer to high-voltage switchgear equipped with gas- and air-insulated circuit breakers. The gas-insulated variety is more costly than the air, but it takes up less space and is therefore the preferred option when installing switchgear in urban environments (the substations can be one-fifth the size of a conventional AIS substation).

System 800xA: The full name is Extended Automation System 800xA, and it is the ABB system used in many industry sectors to oversee and control a wide range of processes. It extends the scope of traditional control systems to include all automation functions within a single operations and engineering environment. This enables plants to perform in a more intelligent and cost-effective way, and to improve productivity.

Variable speed drive: A drive is an electronic device used to regulate the performance of an electric motor. It works by controlling the power, frequency and current the motor draws from the grid. Drives (also referred to as a variable-speed motor drive) can lead to considerable energy savings as most motors run at full speed, even when a lower speed would suffice. Many motors are controlled by "throttling down," which is equivalent to slowing a car by using the brake, rather than taking your foot off the accelerator, and does not save energy. Reducing a motor's speed by half using a drive can reduce the energy it consumes to one-eighth of its consumption at full speed.