**3DLevelScanner II**


# High Temperature

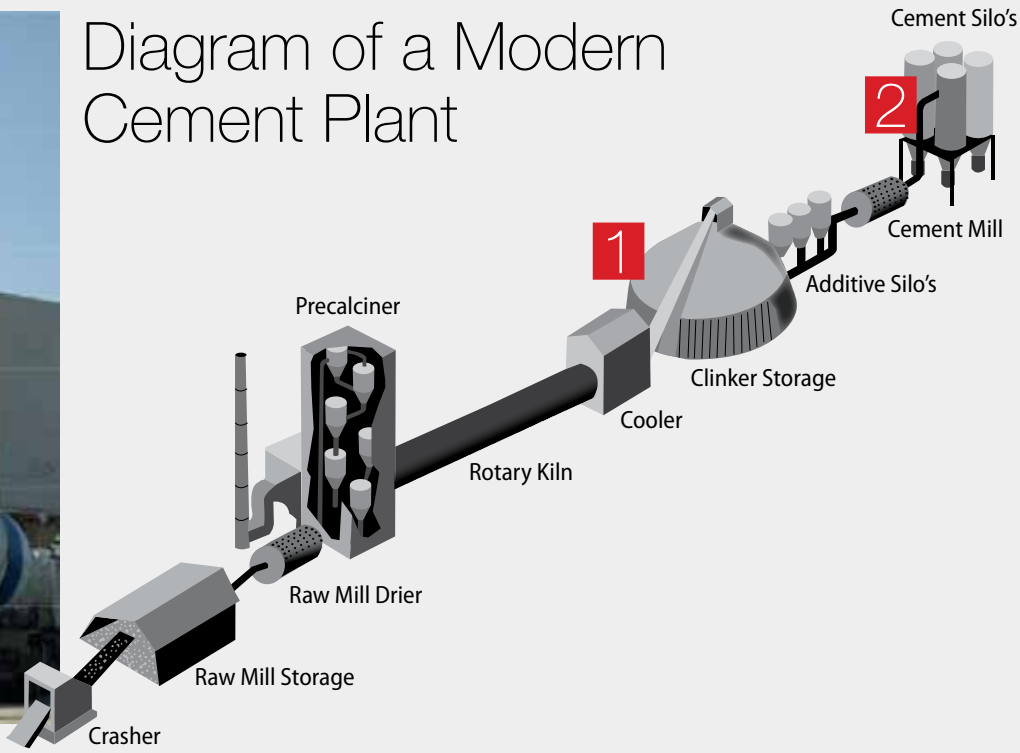


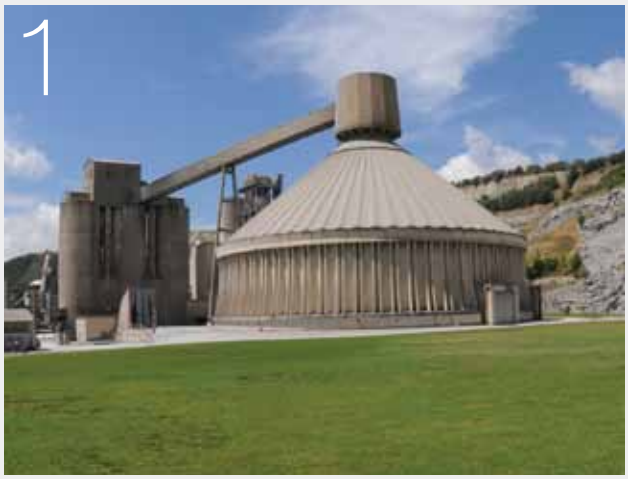
## Total inventory management

APM

*Changing the market from level to volume*

# Diagram of a Modern Cement Plant



## 1 Clinkers

More than a billion tons of cement are manufactured every year. The finishing process requires clinkers, typically chunks or nodules with 1 to 10 mm diameters that ultimately serve as the binding agent for cement. Clinkers are produced by burning and grinding a limestone with clay or shale in a multistage process involving extremely high temperature (up to 1450° C / 2642° F) in a clinker kiln and extremely harsh and dusty environments in a cement kiln which "cooks" the rawmix at slightly reduced temperatures. Clinkers, after cooling to 70° – 100° C (158° - 212° F) are stored in clinker silos, often towering more than 60m (197 ft) high with diameters of up to 30 m (98 ft).

## 2 Cement

Clinkers stored in silos must pass through ball mill (roller mill) where the rotating movements reduce them to particularly fine grains through shock or crushing. The fine powder that results is the cement.
Gypsum is added to regulate the setting time of cement. Complementary substances may also be added, such as lime filler or fly ash (resulting from the combustion of fuel in power plants) which improve its workability and its consistency; slag from blast furnaces (byproducts of steel works) which improve its hydraulic properties.
The cement that is finally obtained is stored in very large silos (up to 60m /197 ft high and 30m / 98 ft diameter) with capacities of several thousands of tons, sometimes divided into compartments to preserve many diverse kinds and qualities of cement.



# Alumina

The aluminum industry is dependent upon a steady supply of alumina (aluminum oxide) as its basic raw material. Several steps are involved in the extraction of alumina from ore and clay rich in aluminum, primarily bauxite, to make it suitable for actual aluminum production. The last step in the process, calcination, takes place in a kiln at 1100°C (2000°F) and removes the chemically combined water from the alumina hydrate, resulting in the very fine white powder, alumina. The alumina is still relatively hot – 70° to 100°C (194° to 212°F) when it enters the storage silo. The storage silos are typically very large (up to 60m /197 ft tall with diameters as large as 30m / 98 ft).

Large silo size, high temperature of the material being stored, and the very dusty storage environment – individually and together – present serious challenges to accurate measures of the actual quantity (volume) of alumina stored at any given time.

# The APM Solution – 3DLevelScanner II HT

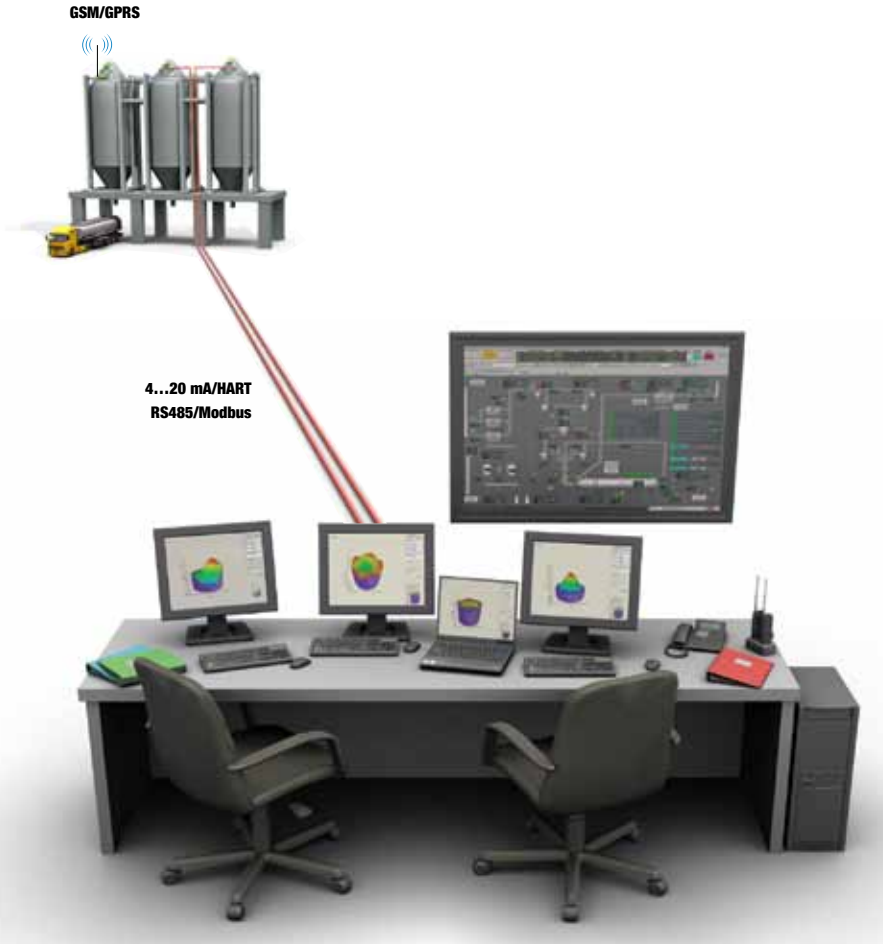
APM's 3DLevelScanner II HT helps overcome challenges of providing accurate, reliable, and timely measures of the true volume of materials stored at high temperatures (up to 120°C / 250° F).

APM's technology can also overcome harsh environmental conditions such as dust, industrial noise and humidity. It provides optimal coverage for practically any size or type of silo, with single or multiple filling points, and readily detects and displays material build-up using APM's special visualization tool.

Managers in relevant departments in an organization – operations and production, logistics, finance – may access such data any time and from any place, allowing them to make the informed decisions.

# 3DLevelScanner II

# APM - get accurate




**APM Automation Solutions Ltd.**
ATIDIM High-Tech Industrial Park
Building 2 P.O. Box 58171
Tel Aviv 61580, Israel
Tel: +972 3 6488891
Fax: +972 3 6488892
info@apm-solutions.com
www.apm-solutions.com

Represented by



BRO0000110