DFMC

Company Profile

Situated in Dandong, one of the most beautiful border cities in China, Dongfang Measurement & Control Technology Co., Ltd., hereinafter referred to as DFMC, is one specialized mine automation engineering company as well as a large instrument manufacturer which is the largest in China, occupies over 90% market share in the field of mineral processing automation that has been implemented. At present, we have over 1,000 engineers all over the world.

Since established in 1996, we already have 12 kinds of internationally advanced online measuring analyzers and more than 100 measurement and control systems which were independently researched and developed. With the technologies covering GPS guidance,PGNAA, XRF,ultrasound, infrared, micro-wave, radar, etc. DFMC utilized hundreds of applications in metallurgical, mine, cement, building materials, chemical, coal and other industries.

DFMC is committed to helping clients to realize high quality, high output, energy-savingand consumption reduction to achieve sustainable development for a better world.

Benefits

- Extends quarry life
- Maximize utilization of low cost materials
- Stabilize clinker quality
- Extends refractory life
- Increases kiln throughput
- Save energy consumption

Product Overview

EA-CEMENT cross-belt elemental analyzer is an online material quality detection device. It has great significance for limestone batching, stockpile management and raw mix control at cement plants.

Principle

EA-CEMENT adopts the Prompt Gamma Neutron Activation Analysis technique usually referred to as "PGNAA". Fast neutrons with an average energy of 2.35MeV are released from a neutron source. The neutrons are then being moderated into thermal neutron by the measuring device. The thermal neutrons impact the atomics within the material to produce capturing reaction. Thereby the atomics reach to an excited state and emit characteristic γ rays with different energy and intensity. The element category can be told by testing the energy while the content of different elements can be told by testing the intensity.
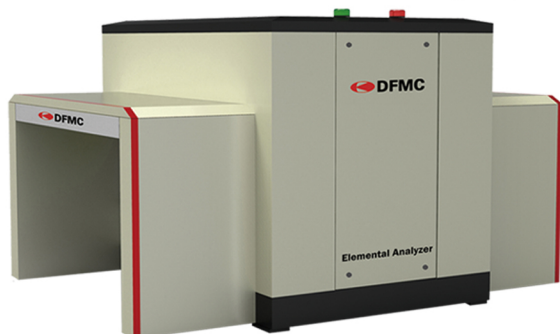
Features

- **Large volume NaI detector:**
  Customized large volume detector enables better detecting efficiency, higher accuracy while maintain the source amount.
- **Free upgrade for software functions:**
  DFMC is professional in online instrument and process control. We understand that there are always particular demands from different sites. DFMC experienced team will customize and upgrade the software according to site demand.
- **No need for source disposal:**
  Unique hollow source design leaves 12 empty seats for top-up sources in the future, which means no need for source disposal in almost 30 years.
- **Remote monitoring:**
  DFMC not only provide technical support at site but also build up a remote monitoring center where the professional team monitors the running status of EA-CEMENT at each site 24/7.

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Limestone Batching System

It's a combination of 3D modeling software, GPS & navigation system and cross-belt analyzer. The user can upload limestone mine exploration data into the system for a 3D mine model. All vehicles position can also be displayed in the system by using GPS. The cross-belt analyzer gives real-time limestone composition and the system automatically compares it against production targets, sends commands to truck drivers and guide trucks to get limestone at proper excavation location.

Applications

Pre-Blending Stockpile Management

EA-CEMENT can be used to guide limestone mining operation. It can automatically generate batchin suggestions according to the pre-set targets and real-time limestone composition data. Based on the results given by EA-CEMENT, the user can directly send commands to vehicles at limestone quarry, in another word, manually control the production to meet the requirements.

Besides, EA-CEMENT can also automatically control the feeding rate of different materials if there is more than one kind of material coming from silos or crushers.

Moreover, EA-CEMENT can be combined with GPS and navigation technology to realize precise limestone batching. Based on the communication network of navigation system, EA-CEMENT can directly send the command to truck drivers at quarry. Improving production efficiency and meeting quality control targets while utilizing as much wastes as possible.

Raw Mix Control

EA-CEMENT can be used to control the production process to make sure the raw meal quality meets control targets. EA-CEMENT is equipped with a blending software which the user can pre-set any control factor on it. Then EA-CEMENT can automatically control the feeding amount of each additive based on the real-time analysis result.

Pre-Blending Stockpile Management

Raw Mix Control
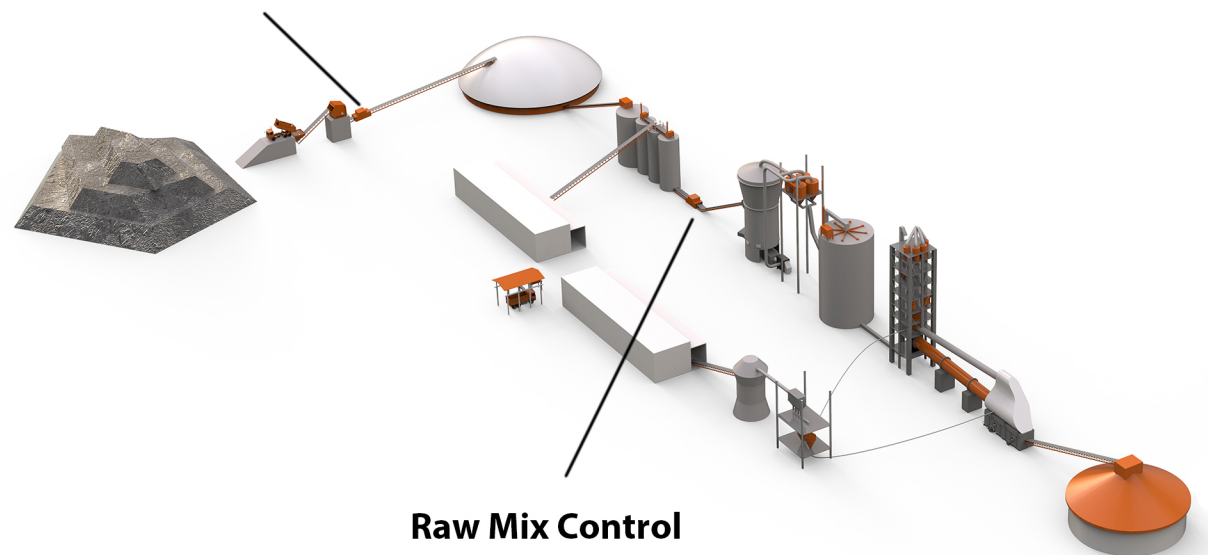
Technical Parameters:

Physical Parameters

Belt Width	650mm	800mm	1000mm	1200mm	1400mm	1600mm	Other sizes
Length	2200mm	2200mm	2200mm	2200mm	2200mm	2200mm	Customization
Width	1700mm	1700mm	1700mm	2100mm	2100mm	2450mm	Customization
Height	1500mm	1500mm	1500mm	1700mm	1700mm	1700mm	Customization
Weight	2600kg	2600kg	2600kg	2900kg	3000kg	3300kg	Customization
Troughing angle	35						

Electronics

Cabinet	Length＝1100mm Width＝770mm Height＝300mm
	IP66
Power requirement	Single phase 230V, 50 to 60Hz, 6.5 Amps, 3-wire (L1, N, GND)

Environment

Temperature	From -30 C to 50 C

Analysis

Principle	Prompt Gamma Neutron Activation
Neutron source	From 15ug to 60ug, determined by application and accuracy requirements
Elements	Si、Al、Fe、Ca、Mg、K、Na、S、Cl、Mn、P、Zn、N、V、Cu、Ni、Ti、Cr、Ag、Hg、As and etc.
Moisture	Optional
Parameters	LSF, Silica ratio, Iron ratio, Basicity, C3S, C2S, C3A, C4AFand etc.

Communication

Protocol	OPC, Webservice
Cabinet to Host (customer pro-	Fiber optic, specification determined by distance

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