SICEMENT Instrumentation

A completely integrated range of process instrumentation for most accurate measuring

Industrial Technologies
The smallest instruments can make the biggest difference

**Process Analytics**

**Gas Analyzing Systems:**
- Precise and reliant analysis of both gas and exhaust emissions from rotary kiln with extractive or fixed systems
- In-situ solutions for safety monitoring inside the ESP, bag house or coal silo, with diode laser
- Efficient, safe and environmentally friendly cement production

**Camera Systems:**
- Fast and reproducible geometric indication of main burner flame patterns as well as of conditions in sinter zone and clinker bed
- Determination of appropriate mixture and amount of fuels to run the plant most efficiently
- Detection of dangerous situations to prevent the refractory material from possible damages
- Prediction of key process parameters like free lime content by introduction of neural networks for KCS

**Kiln Shell Scanner System:**
- Emergency hot spot detection, preventative maintenance, optimized energy and refractory lining management
- Unique modular design for easy maintenance and customizing
- State-of-the-art components for non-contact infrared line scanning
- Integration with CEMAT supporting optimized kiln performance with current and true data

**Measuring Instruments**

**Pressure Transmitters:**
- SITRANS P: complete range for measuring relative, differential and absolute pressure
- Significant benefits: e.g., extension of life expectancy of filter bags and optimum efficiency for preheater operation

**Temperature Transmitters:**
- SITRANS T for true temperature measurements under extreme conditions
- Safeguards smooth running of operations at any point of the process

**Flow Transmitters:**
- SITRANS F with a selection of electromagnetic, coriolis, ultrasonic, vortex, rotary pistol and differential pressure
- Ensures accurate and reliable dosing

**Level Transmitters:**
- SITRANS L offering every type for any application
- Radar transmitters for correct measuring in all conditions especially in large and tall silos
- Ultrasonic transmitters guarantee constant feed of limestone into the crusher

**Process Protection Sensor Technology**

**Proximity Switches:**
- Accurate sensing and maximum system availability and accuracy

**Motion Sensors:**
- Early as possible fault detection and immediate communication to the control room
- Minimization of downtime
- Rapid control and rectification of faults

**Acoustic Sensors:**
- SITRANS AS100 with instant reactions to warn blockages, product absence, or equipment failure
- Allows early preventative action, avoids costly damage and ensures e.g. optimal filtering of exhaust gases

**Vision Sensors:**
- Complete image processing system for automatic inspection of objects e.g. in packing

**Fail-safe Sensors:**
- Early prevention of damage
- Achievement of maximum plant availability and efficiency by ensuring safe and reliable protection for persons, machines and systems

**RFID Systems:**
- Safe, quick and efficient identification
- Resistant to dusty environments
- Considerable costs decrease and improvement of capacity with e.g. automation of truck filling

**Code-reading Systems:**
- Key requirement in modern production systems
- Siemens offers the right products for reading and verifying codes, such as barcodes and data matrix codes
Positioners:
- SIPART PS2 positioners for both linear and rotary actuators
- Simple connection and extremely user-friendly higher-level operation and monitoring

Weighing and Batching Systems

Weighing Electronics:
- SIWAREX PLC-based weighing electronics
- Providing a comprehensive range of weighing processors
- Complete integration into SIMATIC system platform and CEMAT

Load Cells:
- SIWAREX Load Cells: suitable for almost every application
- Comply with the requirements of cement process
- High accuracy and large measuring range

Belt Scales:
- Simple installation
- Consistent performance in hash environments
- Low maintenance
- Repeatable accuracy for productive operations

The Challenge
In a cement process accurate measurement and precise monitoring of production values are vital for a maximum productivity with optimized energy consumption. The solution, however, may not be trivial as far as the harsh operating conditions are concerned. In addition, the growing use of alternative fuels presents new measurement challenges. What is essential today is not only to maintain an efficient and safe cement production but also to fulfill environmental protection requirements by keeping the permitted limits for particulate emissions, hazardous and toxic air pollutants, exhaust gases, etc.

Approach
The key to successful automation is the correct application of the most appropriate process instrumentation, analytics and field devices. SICEMENT Instrumentation provides considerable benefits throughout the entire plant life cycle, from the initial planning and engineering stages, through to modernization. With our cement specific know-how and first-class engineering, cost-effective, functional, space and energy-saving devices are developed and implemented. Our outstanding expertise in developing devices with in-depth application knowledge leads to further innovations for cement industry.

Our Solutions
Siemens has developed for cement industry standardized instrumentation that dramatically improves the reliability, operability and maintainability focused primarily on the lowest capital cost solution. Innovative SICEMENT Instrumentation covers a complete portfolio to meet all cement-specific requirements with comprehensive products and solutions.

Full Integrity with Automation System
SICEMENT Instrumentation, with state-of-the-art fieldbus communication protocols, guarantees a homogeneous solution, not only among different devices but also regarding different control systems. The communication networks supply data from the production plant, the manufacturing process or company headquarters fast and reliably, locally and on a global scale.

Services
For the complete SICEMENT Instrumentation we provide full support for engineering, design, supply, installation and commissioning services. This is managed with our vast experience from projects implemented successfully in cooperation with cement customers worldwide.

Benefits
A cement plant using SICEMENT Instrumentation can benefit from the following outstanding earnings:
- More stable kiln operation
- Increase in production capacity and return of investment
- Energy savings
- Better product quality
- Optimization of free-lime content with more efficient burning process
- Decrease in air-polluting and dangerous exhaust gases
- More accurate planning of maintenance activities
The information in this document contains general descriptions of the technical options available, which do not always have to be present in individual cases. The required features should therefore be specified in each individual case at the time of closing the contract.