PRIMETALS TECHNOLOGIES

PRECON
ENERGY-SAVING SYSTEM FOR ELECTROSTATIC PRECIPITATOR IN STEEL PLANTS

FUNCTION

The electrostatic precipitator (ESP) is one of the main consumers of electrical energy in a BOF plant. Based on decades of process and automation experience, Primetals Technologies has introduced Precon (Precipitator Economizer) to the market. The economizer is able to achieve substantial energy savings in ESP operation.

Operators of ESP systems are obliged to ensure that dust concentrations remain at the required levels. The power needed to achieve this is secondary, which means that for most of the time, energy input to the ESP is 100%. This enormous waste of energy negatively impacts operational costs. Technological experience with electrostatic precipitators tells us that maximum energy input is required only during the steel production phases; during non-production phases, energy input can be reduced to a minimum while still reaching the boundary limits of dust concentration in the clean gas.

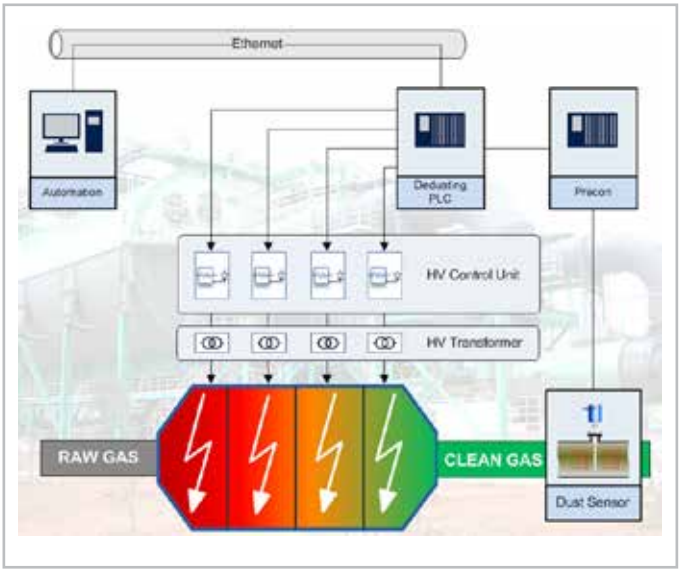
The Precon system is designed to be implemented either as a fully automatic stand-alone unit or as a package, integrated into the dry-dedusting automation system. Based on the converter phase and actual process conditions, the system controls the level of possible energy reduction without compromising overall dedusting performance. All relevant process data are analyzed during operation, and the power reduction calculation is communicated to the individual high-voltage units of the ESP. The operator can easily switch on automatic energy reduction or use the preselected settings. Furthermore, Precon continuously monitors all discharge electrodes, allowing for individual analysis and condition-based maintenance for each ESP field.

FIELD OF APPLICATION

All primary dry-type dedusting systems with electrostatic precipitators in steel plants.

BENEFITS

- Energy savings of up to 60% of present power consumption
- Energy-optimized dedusting control of the electrostatic precipitator
- Dust concentration within the required boundaries
- Automatic filter diagnosis and efficiency determination for each field
- Small outlay with quick Return on Investment
- Easy integration into existing systems
- Short implementation and commissioning time



Precon system topology

Electrostatic precipitator (ESP)

PRODUCT FEATURES

- Dynamic control of energy reduction parameters according to environmental compliance based on continuous dust con-centration measurements
- Simple switchover from normal operation mode to energy-optimized mode
- Highly accurate power monitoring devices for each field of the ESP
- Integrated energy management algorithms precisely evaluate consumed power
- Continuous monitoring of all discharge electrodes allows for individual analysis and condition-based maintenance for each ESP field
- Information for each ESP field, if intensive cleaning of discharge electrodes is recommended
- Easy integration into existing systems thanks to flexible software design and flexible communication to high-voltage units of various ESP suppliers

ELECTROSTATIC PRECIPITATOR (ESP)

The electrostatic precipitator is one of the key pieces of equipment in primary dry-type dedusting plants with high electrical energy consumption. Dust particles are negatively charged by high voltage and become electrostatically attracted to the positively charged collecting electrodes.

OTHER RELATED PRODUCTS

- Bag Filter Control
- Acoustic Expert

SERVICES

- Integration engineering
- Hardware engineering and supply
- Interface coordination
- Calculation of energy reduction parameters
- Advisory service for erection and commissioning
- On-site training for operation and maintenance personnel
- Spare part supply

ECO+

CAPEX

FAST PAYBACK

Primetals Technologies Austria GmbH
A joint venture of Mitsubishi Heavy Industries and partners

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