SICEMENT WHR
(Waste Heat Recovery)

Solutions for waste heat recovery

www.siemens.com/cement
Task: Making the use of resources environmentally and economically worthwhile

The efficient use of resources in the cement industry has become a crucial issue due to stricter environmental constraints, as well as increasing costs for raw materials and power. Today, the use of secondary fuels is already state-of-the-art. Cement manufacturers will need to confront global emissions trading. A permanent reduction of carbon dioxide footprint must be a necessary goal.

Up to now, approximately 40 percent of the waste heat energy from cement plants are released into the atmosphere without being used effectively. The ability to generate electrical energy, using waste heat from the preheater tower and clinker cooler, is becoming an appealing solution.

In cooperation with well-known plant construction companies, Siemens is supporting the cement industry with the planning and construction of innovative waste heat recovery systems which will pay for themselves in a short period of time.

SICEMENT WHR is a solution for the sustainable use of resources that is both economically and environmentally sound.

Solution: Maximum efficiency in any consideration – a by-product becomes essential

From the cement manufacturing, the waste heat from the preheater tower and clinker cooler can be diverted to boilers. The generated steam is converted into electrical energy by a steam turbine generator. What makes this solution especially attractive is that the electrical energy can be fed back into the plant’s power distribution network for own usage. As a rule, this energy can cover a third of the cement plant’s overall electrical power requirements. The optimal usage of resources requires highly efficient technologies. In this context, waste heat recovery (WHR) systems, offered by Siemens, require extremely tailor-made solutions. The initial investment guarantees a consistent level of power generation over many years.

Lower carbon dioxide emissions, greater benefits

In collaboration with experienced partners, Siemens is developing WHR equipment that offers a high level of standardization. The advantage: All engineering elements, interfaces, and hardware solutions come from one single source. The end results are waste heat recovery systems that can be installed and commissioned within a short period of time.

Approximately 40 percent of the generated heat is blown into the atmosphere unused when no waste heat recovery system is applied.
Comprehensive solutions
SICEMENT WHR makes a significant contribution to the optimal operation of waste heat recovery systems, due to an integrated measurement- and automation engineering. Control and monitoring of the equipment are carried out directly by the advanced process control system, SICEMENT-CEMAT, perfectly central and without additional operating personnel – perfectly integrated in the automation system of the cement plant.

Implementing the standard solution
System implementation is performed in collaboration with a reliable partner.

The Siemens scope of supply includes:
- Steam turbine and generator
- Low- and medium-voltage switchgear, transformers
- Drives
- Automation
- Instrumentation
- Cables, cable racks, grounding and lightning protection systems, lighting
- Engineering, installation supervision, commissioning

Our partners’ scope of supply includes:
- Process engineering (thermodynamic calculation) and system design
- Boilers at the preheat tower and clinker cooler
- Installation supervision, commissioning

Your benefits at a glance
SICEMENT WHR offers a measurable return on investment. From an economical standpoint, you are guaranteed:
- A highly efficient WHR solution
- A highly reliable solution available throughout the entire lifecycle
- Standardized turbines specially designed for industrial processes and with a power capacity of up to 50 MW
- An electrical solution integrated into your plant
- A clear competitive advantage for global emissions trading
- Reduction of energy costs
- Guaranteed return on your investment
- Trouble-free integration into the operation of your existing plant

Environmental Benefits
SICEMENT WHR helps to improve the ecological balance. Applying Siemens systems for waste heat recovery allows:
- Continuing carbon dioxide footprint reduction
- Maximum resource utilization

SICEMENT
Siemens product family SICEMENT represents the link between technological plant concepts including IT applications and services, resulting in integrated solutions, tailored to the needs of the cement industry. A combination of selected and proven standards offers safety of operations and investments, thus providing utmost functionality for cement plants. SICEMENT WHR is a part of the Siemens-solutions portfolio and provides the basis for efficient waste heat recovery systems.
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.