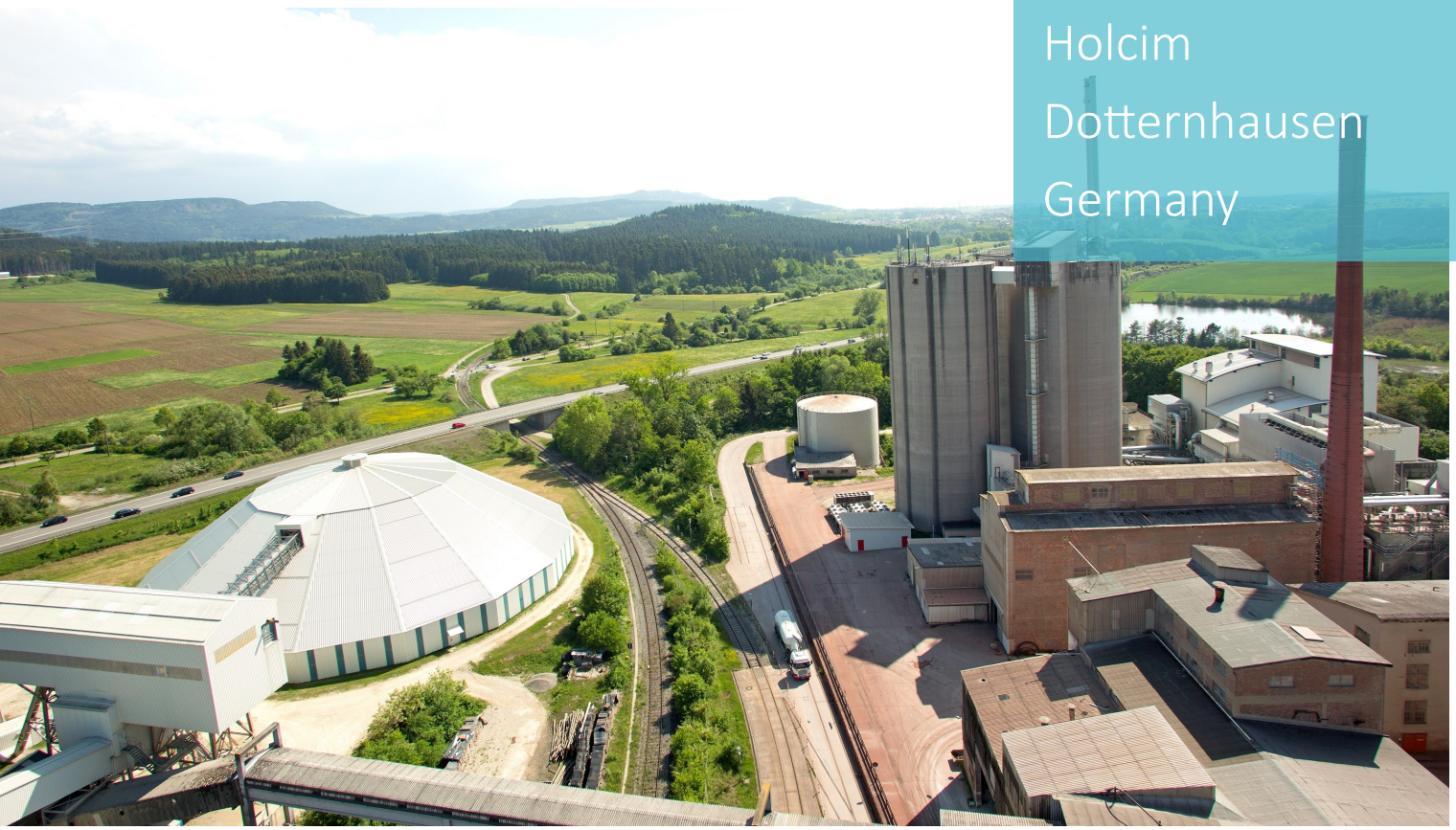
Holcim Dotternhausen Germany



Daikin chiller provides cooling at the Holcim cement plant in Dotternhausen

Minimizing the impact on the environment and the local population is a top priority at the Holcim cement plant in Dotternhausen, Germany.

Cement production consumes a great deal of energy due to the high temperatures required. That's why the Holcim cement plant relies on state-of-the-art technology to achieve its ambitious environmental and energy-efficiency goals. A chiller from Daikin featuring leading-edge technologies designed ensure high energy efficiency and low energy costs is helping the company meet these goals.

Located in the German state of Baden-Württemberg, the cement plant in Dotternhausen employs around 247 people and has a product portfolio encompassing a wide range of different cements. Special binders and geotechnical binder systems for the most diverse requirements of modern earthworks and foundation engineering represent one niche in the cement industry.

The Dotternhausen site boasts a significant advantage: it has large deposits of oil shale, which is a source of minerals and energy. The approximately 180-million-year-old Jura stone at the location provides a unique foundation for producing cement while simultaneously generating power.

When fired oil shale is produced, the waste heat is used to generate electricity – meeting the complete electrical energy requirements of the plant.

Challenging requirements for cooling and reliability , as well as installation

Holcim has relied on Daikin technology in its server and transformer rooms for many years. In 2016, the company also began using a chiller from Daikin to neutralize the heat that the cement mill generates during grinding operations on drives, bearings and on the hydraulic circuit as well as to cool the compressors in the central compressed-air station. These applications place high demands on chiller performance, since the material is previously heated to 1400 °C in the rotary kiln.

The new chiller serves as an extension to an existing unit, which had reached its maximum capacity at 930 kW. As the number of compressors that require cooling grows, the new system ensures the necessary level of reliability. The free-cooling capacity of the existing chiller was no longer sufficient to safeguard the production process, especially in summer.

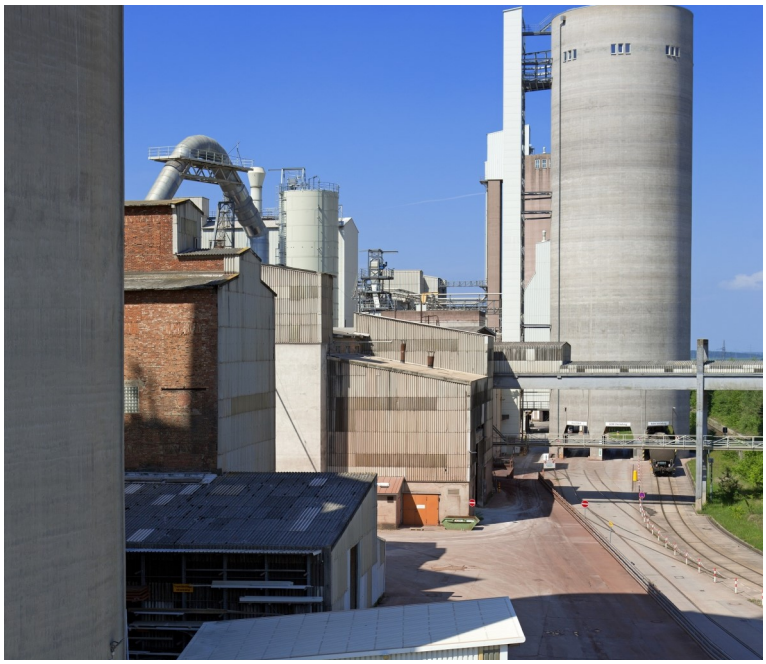
The new air-cooled chiller from Daikin's EWAD~C- series has a total output of 1,200 kW – meeting the cement plant's requirements fully and even providing reserve capacity.

Developed to meet the special requirements for cooling systems used in cement mills, Daikin's chiller can be easily and effectively cleaned – a must due to the high amounts of cement dust and lime dust present in cement plants.

Hot-dip galvanized sheet steel protects the chiller's frame from corrosion in all weathers. For the cement plant's operators, production reliability, which also encompasses the availability of spare parts, is the top priority – because without cooling, the entire production process comes to a standstill and extremely high costs are incurred.

Daikin's zero-error principle ensures failure-free operation. Stephen Mocker of Holcim (Süddeutschland) GmbH notes,

Our close cooperation with Daikin's specialist partner HENNE GmbH made the Daikin chiller the most cost-effective option. Knowing that the company would actively support us with service and maintenance was then the key factor for our decision."



HENNE GmbH, the refrigeration and air conditioning manufacturer commissioned to install the chiller, places particular emphasis on ensuring that the systems it installs make efficient use of resources. The company's activities focus on commercial refrigeration, process cooling, industrial refrigeration, air conditioning, heat pumps and energy efficiency.

The installation of the chiller took place under difficult conditions, with the technicians having only three hours to integrate it. In the event of a prolonged stoppage, the air compressors become overheated and switch off – shutting down operations, since the plant's systems cannot run without compressed air.

Daikin's plug-and-play solutions enabled these challenging demands to be met, with systems supplied ready for installation and operation.

Josef Kurz, Managing Director of HENNE GmbH, is highly satisfied:

"We've been working with Daikin for many years. Their future-oriented and innovative solutions are in perfect accordance with the principles of HENNE GmbH: cutting energy costs for our customers while minimizing their environmental footprint and protecting the climate."

Reducing the cement plant's CO2 emissions

As a binder for concrete, cement is an integral part of our lives, which is found in everything from roads to factory, office and residential buildings. Holcim focuses on making cement and binder from fired oil shale – a production process that cuts CO2 emissions.

Clinker production consumes a great deal of energy due to the high temperatures needed to burn the limestone, making it difficult to optimise the production process in terms of energy consumption.

Holcim nevertheless wants to live up to its environmental responsibility by giving top priority to the use of energy-efficient systems. The company is upgrading its existing systems in a targeted manner, while focusing on enhancing efficiency for new investments.

Daikin chillers offer outstanding operation while also minimising energy consumption.

Intelligent tools – From design to monitoring

Daikin's Chiller Selection Software (CSS) web facilitated the planning and specification of a chiller tailored to Holcim's needs, providing a technical report with all the key operating and practical data for the system implementation.

Once a concept has been developed, it can be generated intuitively and easily using a clearly structured interface that substantially reduces the amount of time required for this task.

The outcome is a complete system optimally designed for the requirements, along with useful information for the further installation steps.

At the Holcim cement plant, great importance is attached to minimizing impact on the environment and the local population

Project Requirements

- ☐ Air conditioning
- ☐ Air curtain
- ☐ Air purification
- ☐ Control
- ☐ Heating
- ☐ Hot water
- ☐ Refrigeration
- ☐ Ventilation
- ☑ Cooling

Year of installation

2016

Installed Systems

> Air-cooled chiller (EWAD~C- series)

The chiller is connected to the building management system, enabling operational data to be monitored and evaluated. All values can be viewed from a centralised control station, with the results to be used to support Holcim's efforts to reduce its environmental footprint while enhancing its cost-efficiency.

Environmental goals always in the spotlight

"The Daikin system has been in operation for two and a half years now and meets all our expectations," Stephen Mocker notes with pleasure.

"*The chiller is helping us achieve the environmental and energy-efficiency goals of Holcim (Süddeutschland GmbH) at the Dotternhausen cement plant. These Include reducing harmful emissions, especially CO2 emissions, conserving natural resources and increasing energy efficiency."*

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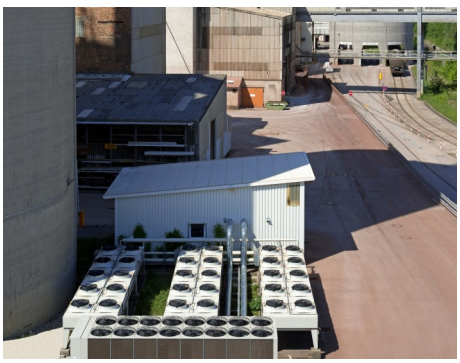
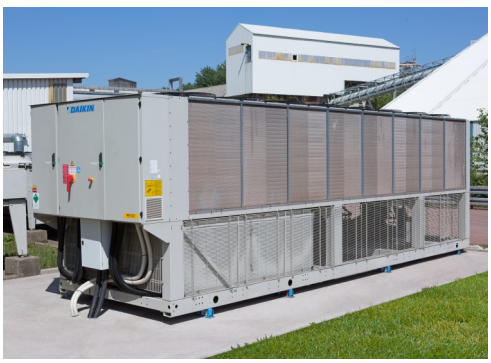


Daikin's chillers are ideal for large-scale applications such as the cement plant.



The air-cooled chiller from Daikin's EWAD~C- series has a total capacity of 1,200 kW.