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Quality and innovation right from the start

SIMOTICS motors: ready for the digital enterprise

Edition 2019

siemens.com/simotics

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We create sustainable value for you through innovation, quality, and partnership.



Built by Siemens in 1896, this motor was in successful operation at Tsingtao Brewery, China, from 1903 to 1995 – for more than 90 years. An innovative game-changer then, and a proof of the highest quality to this day.

Perfectly tailored to the requirements of the digital enterprise

Digitalization of drive technology has long ceased to be just a dream, and has become a powerful driver in its own right. We work with you to take this development forward. This creates an entirely new dimension in added value, characterized by faster times to market, even greater plant availability, and far higher levels of efficiency. For SIMOTICS motors, the interaction between highly standardized seamless platforms and digital twins and connectors for linking to cloud-based status data analysis, provide the perfect basis for comprehensive digitalization of the drive environment and therefore the complete plant or system.

Intelligent drive systems fit seamlessly into every automation environment throughout their entire lifecycle, making the engineering process faster and saving power costs. At the same time, digitally supported drive technology opens up a new dimension in transparency: the huge volumes of data from motors and converters can be recorded, analyzed and turned into valuable data. Analysis of this data leads to new processes that can optimize other processes, evaluate machine status, and arrange an ideal maintenance schedule.

Perfect basis: highly standardized platforms

The seamless and highly standardized platforms of the SIMOTICS family of motors form the perfect basis for the digitalization of the drive environment. SIMOTICS platforms are based on modular systems that extend across power ratings and applications. They employ the same design principles – and use standardized components and interfaces. This standardization of design, components and interfaces immensely simplifies the digitalization of the widest range of procedures in the overall drive landscape. When it comes to planning, selection, engineering and integration – also in the digital image of the overall plant or system – the standard "look and feel" of SIMOTICS motors and standard-

ization of the interfaces pays off tremendously. Standardization of components also supports the digitalization of stock inventory and spare part management processes – and the implementation of data-supported service concepts.

SIDRIVE IQ Fleet – for digital enhanced drive systems

The MindSphere App SIDRIVE IQ Fleet can be used to digitally monitor, analyze, and optimize drive systems, to maximize their availability, efficiency, performance, and serviceability. In turn, this increases productivity, forming the basis for a successful business both now and in the future. To make the drive components communicationcapable, therefore, they are equipped with connectivity modules, for example with SIMOTICS CONNECT 400 for low-voltage motors and SIMOTICS CONNECT 600 for high-voltage motors up to approximately 20 MW.

SIDRIVE IQ Services give users digital expert support for optimizing plant availability and productivity. They're based on an innovative combination of remote services and condition monitoring services that minimize scheduled and unscheduled downtimes.

siemens.com/sidrive-iq



From user-friendly to future-proof – the tools for your success

We assist you in selecting the right drive solution with qualified consulting and software solutions that let you compare your alternatives directly. You also get continuous access and transparency regarding the electrical and mechanical data from your motor.

SinaSave energy efficiency tool



You enter the conditions of use and SinaSave determines the energy savings potential and amortization periods and lets you compare different control types and product combinations for pump and fan drive systems. Supported by diagrams, for example system power losses according to EN 50598, you can make sound investment decisions with help from SinaSave. For more information, please visit: siemens.com/sinasave

Drive Technology Configurator



Select the optimum gearboxes, motors, converters as well as the associated options and components, controllers, software licenses, and connecting systems – comfortably, securely, and quickly with the Drive Technology Configurator. It provides all technical data sheets, operating instructions, certificates and 2D dimensional drawings/3D CAD models as further support. For more information, please visit: siemens.com/dt-configurator

SIMOTICS EE-COMPARATOR

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The SIMOTICS EE-COMPARATOR gives you a reliable comparison of the SIMOTICS low-voltage motors in network and converter operation with only a few items of key data. The app calculates energy efficiency, possible energy cost savings, and the amortization period. The results, for example the break-even point, are also displayed in graph form. For more information, please visit: siemens.com/simotics-ee-comparator

SIMOTICS Digital Data App

The SIMOTICS Digital Data App gives you quick access to important product information on your SIMOTICS motor at all times: Just scan the data matrix code affixed to the motor and you'll receive the unit's electrical and mechanical data. And your customers will immediately receive operating instructions or spare parts lists for your motor. For more information, please visit: siemens.com/digitaldataapp



Web selectors: Top choice is just three clicks away

New Web selectors like Easy Selection HV Motors and LV Motors allow users to save a lot of time when selecting and subsequently configuring products. All they need to do is enter the three most important keywords – power, voltage, and speed – and the Web selector immediately offers specific product suggestions along with technical data and list prices.

www.siemens.com/lv-easy www.siemens.com/hv-easy Our low-voltage AC motors and drive systems are the most versatile tool for all applications in a performance range of 0.09 to 5,000 kilowatts (kW). With groundbreaking innovations and numerous advantages, including high efficiency across all load ranges, a positive energy balance, excellent explosion protection, and conformity with IEC or NEMA standards, our low-voltage motors and drive systems keep you one step ahead of the competition, ensuring the highest possible costeffectiveness in operation.

siemens.com/low-voltage-motors

Low-voltage motors Efficient and powerful



SIMOTICS SD next generation

The robust SIMOTICS Severe Duty Motors excel with their optimized performance and wide range of digital features. They are equally reliable under high stress caused by dust and vibrations and in the aggressive environments of the process industry. They also satisfy the requirements of efficiency classes IE3 and IE4, and comply with the system efficiency class IES2 (according to EN 50598).

You can select from three basic variants: the SIMOTICS SD with higher torque characteristics, the SIMOTICS SD Add with its lower starting currents and global certificates – and the extremely flexible SIMOTICS SD Pro, which convinces the world with converter operation up to 690 Volt (V) and multivoltage capability.

Your benefits:

- Optimization through digitalization Increase process transparency and optimize serviceability – with the digital pioneer
- Best-in-class design Gain more efficiency and flexibility in assembly
- Future-oriented energy efficiency concepts Boost your competitiveness thanks to energy savings
- Easy business, fast delivery Take your own performance to the next level along the entire value chain

siemens.com/simotics-sd-nextgeneration



The new generation of motors for all explosion protection applications. Decades of experience and expertise, and compliance with top quality standards form the basis for maximum safety and reliability. SIMOTICS XP also impresses with a short time to market, lower expenditure, and reduced lifecycle costs.

Your benefits:

Complete, coordinated range

A technologically comprehensive platform concept for all zones and types of explosion protection and for series as well as project production, fixed-speed applications and variable-speed operation

- Extremely reliable in tough day-to-day use High quality and robust design – best suited for harsh enviroments in the process industry
- Short project run times Short delivery times, no project-specific system tests for variable-speed operation, and all essential certificates available
- Reduced expenditure in all phases Simplified planning, procurement, engineering, integration, commissioning, service, and also warehousing and spare parts supply thanks to standardized tools and processes
- Customized industry solutions CHEMSTAR version, with preconfigured packages of options for the chemical and oil and gas industries

siemens.com/simotics-xp

Portfolio of low-voltage motors



GP General Purpose







XP Explosion Proof



Definite Purpose

DP



FD Flexible Dut



Synchronous-reluctance drive systems

The combination of SIMOTICS reluctance motors and SINAMICS frequency converters offers unique advantages - now also consistently from shaft height 80 till 225. This rounds out the motor portfolio, which now covers the range of ratings from 0.55 to 45 kW, with speeds of 1,500, 3,000 and 2,610 (87 Hz) rpm.

The coordinated system of SINAMICS G120 converters and synchronous-reluctance motors allows for the perfect control of pumps, fans, and compressors. The SINAMICS S converter and SINAMICS reluctance control license even enable sensorless motor control down to standstill. This means it can be used with winders, servo pumps, and extruders.

Your benefits:

- High energy efficiency from the partial load range up to the rated operating point
- High dynamic performance through optimized control and low intrinsic moment of inertia
- High degree of productivity thanks to minimum operating costs, short cycles and high level of reliability in operation

siemens.com/reluctancedrivesystem







ΗТ

High Torque

ΤΝ Transnorm



a SIMOTICS synchronous-reluctance motor and a SINAMICS G120 converter. The solution proved to be more efficient than another drive system that was also tested. The new SIMOTICS synchronousreluctance motor was also structurally compatible with the motors previously used, which meant that the company didn't need to invest in a retrofit kit.

Innovation: A perfectly coordinated motor/converter system, with the size of the entire drive system reduced by more than one capacity stage and a motor code that made it possible to simplify commissioning. The Satteldorf plant was defined as a pilot project to test the first 25 highly efficient SIMOTICS synchronous-reluctance motors in conjunction with the SINAMICS G120 converter and to then equip other Knauf factories with the Siemens solution.

the plant, sometimes at full load and other times at partial load. Solution: A highly efficient variable-speed drive system consisting of

Kaeser Kompressoren SE

Location: Coburg, Germany Industry: Compressed air systems

Challenge: Lower operating costs, a smaller footprint, and precise, reliable control of the compressed air demand and



its typical process-related fluctuation were the requirements that Kaeser Kompressoren SE imposed on its innovative HBS.1 screw blower.

Solution: Coordinated drive system comprised of next-generation SIMOTICS SD motors and SINAMICS G120 variable-speed drives.

Innovation: Working together, SIMOTICS SD and SINAMICS G120 comply with the high IES2 system efficiency class across the full control range and thereby lower the energy demand of the entire screw blower. Service costs are also lower, thanks to the extremely robust, low-maintenance, and service-friendly motors. The higher power density, smaller enclosure dimensions, and the more flexible connection concept of the SIMOTICS SD next-generation motor contribute enormously to the smaller footprint of the new screw blower.

Neue Halberg-Guss GmbH

Location: Saarbrücken, Germany Industry: Automotive supplier, iron and aluminum casting

Challenge: Modernizing two large radial blower systems to achieve higher energy



efficiency and reliable operation of the thermal processes, re-certification according to ISO 50001

Solution: Two SIMOTICS FD (Flexible Duty, 325-kW) motors with SINAMICS G120P converters

Innovation: Reducing power costs by up to 10 %, as SIMOTICS FD is designed for converter operation, and optimized for SINAMICS converters to increase system efficiency for full and partial load. Lower engineering costs, as motor and converter are perfectly harmonized and coordinated with one another.

Latest references

Knauf Integral KG

Location: Satteldorf, Germany Industry: Gypsum drying machine Challenge: Knauf Integral KG wanted to

increase the energy efficiency of its



Motors from large to small and from standard to customized

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Ideal for simple and special applications

Optimized by digitalization: SIDRIVE IQ, SIMOTICS Digital Data App, Digital twin Siemens offers the world's broadest range of motors for motion control applications, all perfectly matched to operate with our family of SINAMICS frequency converters. The advantages are compact design, excellent dynamics, and precision, as well as high operating efficiency. Whether synchronous or asynchronous, with or without gear units as well as built-in motors and motor spindles, we have the right motor for your motion control application.

siemens.com/motion-control-motors



Motion Control Motors Dynamic and precise

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High dynamic performance, extremely compact design – SIMOTICS S

Whether for positioning in pick-and-place applications, for cyclic drives in packaging machines or for path control in handling equipment and machine tools: our permanent magnet SIMOTICS servo motors with the highest energy efficiency are the first choice wherever high dynamic performance and precise motion sequences are required. Depending on the application, they are available with different integrated encoders – from basic resolvers up to high-resolution absolute encoders. The series of SIMOTICS S motors is rounded off by SIMOTICS servo geared motors.

Your benefits:

- Servo motors for highly dynamic and precise positioning along with precision motion control
- Perfectly adapted to every drive task, thanks to a selection of moment-of-inertia versions
- Service- and installation-friendly quick-release connector that can be rotated, and replaceable encoder

Precise rotation up to 40,000 rpm – SIMOTICS M

SIMOTICS M are the main motors for applications where the primary focus is on a continuous and precise rotary motion of axes. They are perfect as the main drives for presses, as roll drives in printing and paper machines, and in textile and plastics machines. They are also used as winder drives – and are employed in machine tool spindles and cranes. With a power range extending from 2.8 up to 1,340 kW, they cover almost every application.

Your benefits:

- Main motors for precise and smooth operation of rotary axes and main drives
- Thanks to the modular system, the optimal motor can be configured with numerous options for every application
- Highest levels of efficiency can be achieved thanks to selection of synchronous or asynchronous version

Higher dynamics across the board – SIMOTICS L

SIMOTICS linear motors are the ideal solution if linear motion is to be executed with maximum dynamic performance and precision. The reason: elasticities, backlash, and friction effects as well as natural vibration in the drive train are avoided to a large extent. That's because when using linear motors, mechanical transmission elements – such as ballscrews, couplings, and belts – are eliminated. This simplifies the machine design and reduces wear.

Your benefits:

- Linear motors for the highest dynamic performance and precision in linear motion
- Enormous force density in a compact design
- The motors require no maintenance, which means add to high technical availability

Highest precision for rotary axes – SIMOTICS T

SIMOTICS torque motors are optimized for high torques at low rated speeds. With a high-precision and dynamic performance as well as low wear (there are no mechanical transmission elements), they are desirable as built-in motors for rotary cycle machines, rotary indexing tables, and swiveling and rotary axes: for example, for machine tools. The same is true for the complete torque motors, which are used as rolling mill motor and winder drives in converting applications.

Your benefits:

- Torque motors for gearless direct drive with a high dynamic performance for all rotary axes
- Direct controllability; no elasticities in the drive train
- Low quantity of individual components reduces the number of interfaces, maintenance costs, and stock of spare parts

Individual solutions for special applications

Sometimes there's no way around application-specific solutions. We can offer you this: Based on our many years of experience, we work with our customers to design and implement application-specific motor solutions that are perfectly tailored to your requirements in terms of both design and performance. Not only this, you'll also profit from the high level of integration in our converter and control environment.

Latest references

Dr. Kurt Wolff GmbH & Co. KG

Location: Bielefeld, Germany

Industry: Cosmetics

Challenge: Utmost flexibility in production

Solution: Multi-Carrier-System based on SINAMICS S120 frequency converters and SIMOTICS S-1FK7 permanent-magnet synchronous motors for highest speed and easy programming using the SIMOTION SCOUT engineering system

Innovation: Innovative system solution for batch size one

Geiss AG

Location: Sesslach, Germany

Industry: Plastics machinery

Challenge: Simplify automation complexity

Solution: A new system concept based on the integration of SIMOTICS S-1FK7 servo motors, SINAMICS S120 drives with integrated technology functions, and SIMATIC components

Innovation: Thanks to synchronous servo motor technology, production processes are much more precise than with the former pneumatic drive



Location: Wilhelmsthal, Germany

Industry: Glass industry

Challenge: Go fully electric by converting the last non-electric drives



Solution: Innovative servo-pump solution based on SINAMICS S120 and SIMOTICS S-1FT7 servo motor and direct drives for powerful and accurate timing on the rotary table

Innovation: In addition to energy savings, higher cycle rates (more pieces per minute) are also possible with the servo-hydraulic system

Goebel GmbH

Location: Darmstadt, Germany

Industry: Machine and plant

construction

Challenge: Increasing machine availability



Solution: More versatile slitter rewinder based on SIMOTICS M-1PH8 main motors and Siemens components for drive technology

Innovation: Increased availability of the machine with comprehensive Totally Integrated Automation (TIA) system diagnostics

Dirinler Industrial Machineries Company

Location: Izmir, Turkey

Industry: Metal forming

Challenge: Quick and easy adjustment of quantities and forming processes

Solution: Servo-controlled press design based on SIMOTICS T-1FW3 torque motors and electronic motion control with the SIMOTION motion control system

Innovation: Flexibility and cost-effectiveness with high process reliability



Portfolio of motion control motors



Servo Motors



Main Motors



Linear Motors



Torque Motors



Innovative motor technologies in all power and performance classes

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Condition Monitoring and DataMatrix Code for simple availability and analysis of operating data for performance optimization

Optimal system solutions, perfectly harmonized

A smart concept with a wide range of options makes the SIMOTICS HV motors the preferred choice for virtually any imaginable configuration with a power range from 150 kW up to 100 MW and more, speeds from 7 to 15,900 rpm, and torgues up to 2,460 kNm. Options include several cooling systems and explosion protection types (Ex ec, Ex db, Ex eb, Ex pxb, Ex tc) as well as double protection variants for use in potentially hazardous areas. In addition, degrees of protection up to IP68 and special paint systems are available for use in aggressive atmospheres and under extreme conditions. We even supply SIMOTICS HV motors for use in temperatures as low as -60° Celsius and for applications with rigorous vibration quality requirements in line with the API standard. With its compact, modular, high-power, high-torque, and specialized series, SIMOTICS HV is the perfect fit for every drive application in the medium- and high-voltage range.

siemens.com/high-voltage-motors

High-voltage motors Extremly reliable and efficient

Our latest innovations

Especially for high-voltage motors, the KPIs – efficiency, reliability, system availability, and consistent, end-to-end operating concepts – are strictly defined and the challenges are extensive. That's why we're committed to the highest standards of performance right from the motor development stage, backed by our decades of experience in the industry. Because we know that our equipment is critical for your system's reliability. Discover the latest innovations in our portfolio of high-voltage motors:

SIMOTICS HV C

Our ultra-compact SIMOTICS HV C high-voltage motors are equipped with water jacket cooling and are available in a pressure-resistant version with revolutionary patented air cooling. Their standard design and light weight ensure simplified plant integration, which is further supported by variable terminal box positioning. In addition, a reworked motor base design provides for further improved vibration characteristics.

SIMOTICS HV M

Shorter project run times and greater reliability: High-voltage motors with a modular cooling concept are outstanding with their extremely short delivery times and extensive adaptability for a wide range of applications. The fact that they perform reliably and with low vibration under even the most demanding of conditions also speaks for the SIMOTICS HV M motor series, as does its compliance with a wide range of industrial standards such as API.

SIMOTICS HV HP

Shorter project run times, lower costs – and an output range of up to 70 MW. SIMOTICS HV HP motors can be quickly implemented thanks to fast order processing, on-time delivery, and short delivery times. They excel not only with their impressive efficiencies of up to 99%, but also with outstanding cost-effectiveness thanks to reduced operating costs. In addition, an easily removable housing, large service openings, and quick access to standard spare parts ensure completely smooth maintenance.

SIMOTICS AMB technology

The benefit of SIMOTICS Active Magnetic Bearing Technology is that of non-contacting bearings, and is both simple and ingenious. A floating shaft generates no friction, so there is no wear. And where there's no risk of wear, there's also no need for oil. This in turn eliminates the risk of oil leaks. But these are far from the only benefits. Increased energy efficiency, consistent end-to-end operating and service concepts, maximum system availability, and optimized operating costs are also powerful advantages.

Your benefits - digitalization as the key to success

- Cloud-based data analysis: Integration of the entire MV drive system in cloud-based data analysis
- Visualized data flows: Representation of bearing vibrations, bearing and winding temperatures
- Simulation of temperature curves: Cloud-based comparison of simulated temperature curves using actual measured data
- Digital twin:

Increased efficiency and quality thanks to digital visualization, with shorter modification times and smooth operation

• Fault analysis:

Future-oriented derivation of trends and forecasting options for long-term optimization of operations thanks to fault analysis and statistical evaluations

Portfolio of high-voltage motors



HV C Compact Motors



HV M Modular Motors



HV HP High Power Motors



HV Specialized Specialized Motors

Latest references

Shougang Jingtang United Iron & Steel Co., Ltd

Location: Tangshan City, Hebei Province, China

Industry: Steel works

Application: For the two 5,500 m³ blast furnaces, a blower station is necessarily set up. Three axial-flow Blast Furnace (BF) blowers are installed inside the blower station. The maximum air volume of the blowers is 10,000 Nm³/min and the air pressure at outlets is 0.65 MPa(a).

Challenge: Maximum performance and significant cost savings at the blast furnace blowers.

Solution/Innovation: 11 synchronous motors, including three sets of 60 MW motors, which are the largest electrical motors running in China. Six load-commutated inverters, including two sets of 14.5 MW SINAMICS GL150 starting converters for the blast furnaces, air separation units and sinter plants, matching transformers, and a set of MV switchgears.

Oriental Energy Company

Location: Zhangjiagang, Jiangsu Province, China

Industry: Oil & Gas, Petrochemical

Application: HV motors for three compressor trains at PDH plant

Challenge: Build a highly reliable system to keep the piping in the complex process chain under constant pressure.

Solution/Innovation: Two 34 MV DOL (Direct On Line) highvoltage (HV) motors; a SINAMICS GL150 medium-voltage (MV) converter, at present the power-wise largest MV converter in China; a SINAMICS GM150 MV converter, designed as special tandem solution, able to feed a compressor motor from two sides. This special design is the first one in the world; a 15 MV variable-speed drive with a speed range from 70 to 100 percent, including the first high-speed high-voltage motor in China.

Stadtwerke Düsseldorf AG

Location: Fortuna Power Plant, Düsseldorf, Germany

Industry: Combined cycle gas turbine power generation, district heating

Application: Boiler feed pump drives, district heating pumps, excitation system

Challenge: The Fortuna Power Plant currently holds three world records, attributable to the input from Siemens: It has a maximum net electrical output of 603.8 MW, electrical efficiency of around 61.5 percent, and a district heating supply of 300 MW. The resulting overall efficiency of the natural gas fuel is up to 85 percent.

Solution/Innovation: Two 3.7 MW modular high-voltage motors for the feedwater pumps, a robust water-cooled GM150 converter, and a THYRIPOL excitation system consisting of two modular high-voltage motors from Siemens and two SINAMICS GM150 (4 MW) medium-voltage drives, as well as low-voltage motors and drives.







Maximum reliability and long service life, even in extreme environments

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Condition monitoring for simple availability and analysis of operating data for performance optimization

Energy efficiency and ultracompact design SIMOTICS DC direct current motors in the power range from 31.5 to 1,610 kW are of compact modular construction and can be deployed in difficult installation conditions. A comprehensive range of add-on modules is available as well as a diverse selection of monitoring and diagnostics options. The high quality of these motors is assured by our comprehensive quality management system. This guarantees reliable, fault-free operation.

siemens.com/dc-motors

Direct current motors Maximum dynamic performance and reliability High availability, optimized dynamic performance, and high reliability for disturbance-free operation

High power density with low envelope dimensions

The ideal partner for our SINAMICS DC Master converters, for low investment costs and high availability in the widest range of applications

Close to you and your customers – globally





Peace of mind, wherever you are

For more than 165 years, the name Siemens has been synonymous with internationality and worldwide presence. We are a global powerhouse positioned along the entire electrification value chain – from power generation, transmission, and distribution to smart grid solutions and the efficient application of electrical energy. As a local partner with a global presence, we are represented in more than 190 countries. We manufacture at 25 international production sites in order to be close to you and to shorten the delivery time of our products to the minimum. We're at home in your markets, and we understand your specific needs. In the motor business, that makes us the global leader with a regional face.

SIDRIVE IQ Services

Our innovative approach for the next generation of Remote Services and Condition Monitoring Services



With SIDRIVE IQ, condition data from your drive train components is transferred to the cloud via an encrypted connection. All the data is combined in a single system. Thanks to the web-based dashboard, you have constant transparency about the condition of your components. Automated status reports and e-mail alarm notifications in the event of limit value violations also help you to detect failures at an early stage.

With SIDRIVE IQ Services, we offer you digital expert support to optimize the availability and productivity of your plant to the greatest possible extent.

Our service experts continuously monitor the connected components. If a weak point is detected, we notify you directly and comprehensively. We're also happy to help you with planning and troubleshooting.

In the event of an unpredictable fault, we offer you immediate support. In this case, our service expert team is automatically informed via the cloud and contacts you directly to initiate troubleshooting as quickly as possible.

Why should you choose SIDRIVE IQ Services?

- The comprehensive digital approach combines all the advantages of Remote Services and Condition Monitoring Services in a single system
- SIDRIVE IQ is an innovative, cloud-based data analysis solution for your motors and converters
- Take advantage of the opportunities of digitalization in combination with manufacturer expertise and the many years of experience of our service experts

Latest references

ENGIE SA Germany (until April 2015: GDF Suez)

Location: Zolling Power Plant, Germany

Industry: Power plant operation

Challenge: Improve reliability and security of supply at a hardcoal-fired power station with extremely high efficiency

Solution: Optimum solution Condition Monitoring – Remote Diagnostics for two medium-voltage motors, each with 1,600 kW power to drive the main coolant supply

Innovation: Motor condition monitoring boxes measure speed and vibration in operation, monitor all critical parameters, and enable deep analysis of the measured values.

Südzucker AG

Location: Zeitz, Germany

Industry: Sugar factory

Challenge: Noticeable reduction in energy consumption in sugar production and implementing measures from a single source – with minimal commitment of own resources.

Solution: Measurement and detail analysis to assess potential savings. Conversion from mechanical rotation control to speed control using a new SIMOTICS FD motor via a SINAMICS frequency converter.

Innovation: Reducing the energy requirement at the secondary air pump by 38.7 percent (forecast: 38.5 percent), annual energy saving of more than 930 MWh, CO₂ reduced by 680 tons per year.







Integration of drive technology Impressive in use

Over the course of decades in countless plants around the world, SIMOTICS motors have proven their extreme reliability millions of times over in daily use in all industrial environments. As an integral part of coordinated system solutions, they increase plant efficiency and are an important cornerstone in company-wide digitalization strategies.

Kaeser Kompressoren SE Location: Coburg, Germany Industry: Compressed air systems



"SIMOTICS SD next generation is ideal for our new HBS screw blower, mainly because of its energy efficiency, compact design, and low service costs."

W. Hartmann, Head of Marketing, Kaeser Kompressoren SE

"The Siemens synchronousreluctance system has proven its worth. We have been able to prove real savings in energy costs".

> T. Kroiher, Plant Manager, Knauf Integral KG



Knauf Integral KG Location: Satteldorf, Germany Industry: Dry wall construction





Ho Thanh Cuong, Deputy Director of SWIC

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