

Hanover Fair 2013

Preliminary press conference, March 5, 2013

Expert Talk

Dr. Sven Demmig

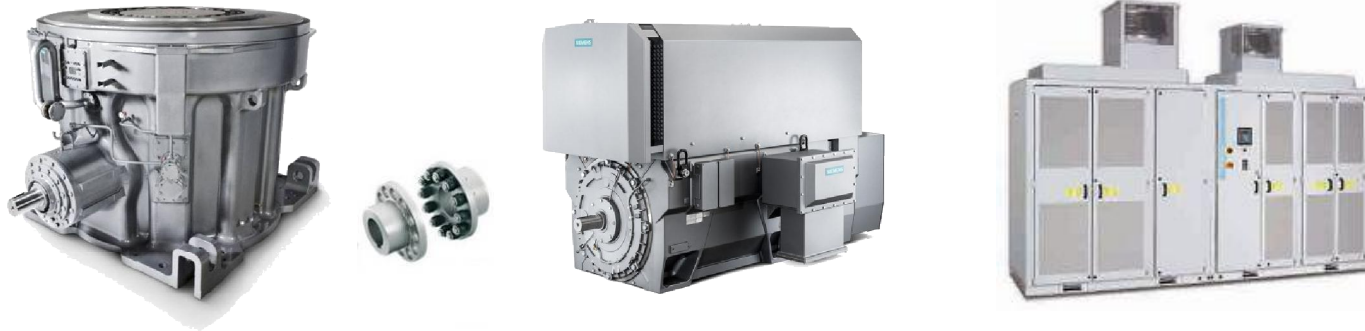
Integrated drive system for pump, fan and compressor applications –
efficiency and reliability over the complete lifecycle

Integrated Drive System (IDS)

A perfect interaction

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- Efficient and reliable drive-related products, such as converters, motors, couplings, gearboxes and control systems
- Integrated system with components that are optimally harmonized and coordinated with one another
- Lower costs for customers as a result of IDS
- Fewer interfaces and lower coordination costs over the complete lifecycle
- Everything from a single source – from planning and implementation of the project up to service
- Standard software tools and operating control philosophies for simpler engineering and operation



The optimized component as basis for an efficient system

- SIMOTICS HV series H-compact PLUS

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The technology

- 900 kW up to 4000 kW, shaft heights 450, 500 and 560
- Low noise (80 instead of 83 dB(A)) as a result of a new cooling design
- Efficiency has been increased by 0.4% up to 96.5%
- Efficient operation when fed from SINAMICS converters
- Insulation and bearing system guarantee a high degree of reliability
- Excellent vibration behavior

Highlights

- 2-pole version for pump and compressor applications
- Low maintenance costs and reliable operation over the complete lifecycle
- Especially space-saving as a result of the high power density (+5%) and compact design
- Harmonized and coordinated system solution with SINAMICS converters – optimized for a long service life



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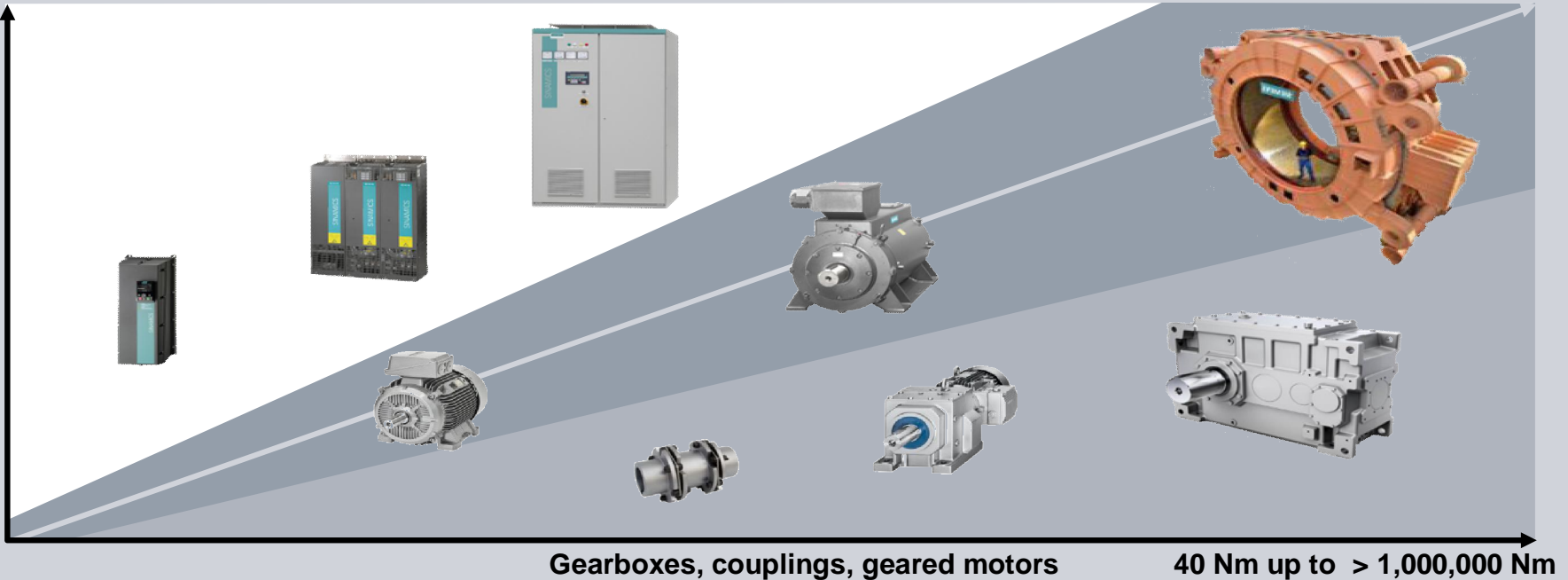
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The complete bandwidth of reliable drive products – the optimum solution for each and every application

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SINAMICS converters
0.12 kW – 85 MW

Drives/motors
0.09 W – 100 MW



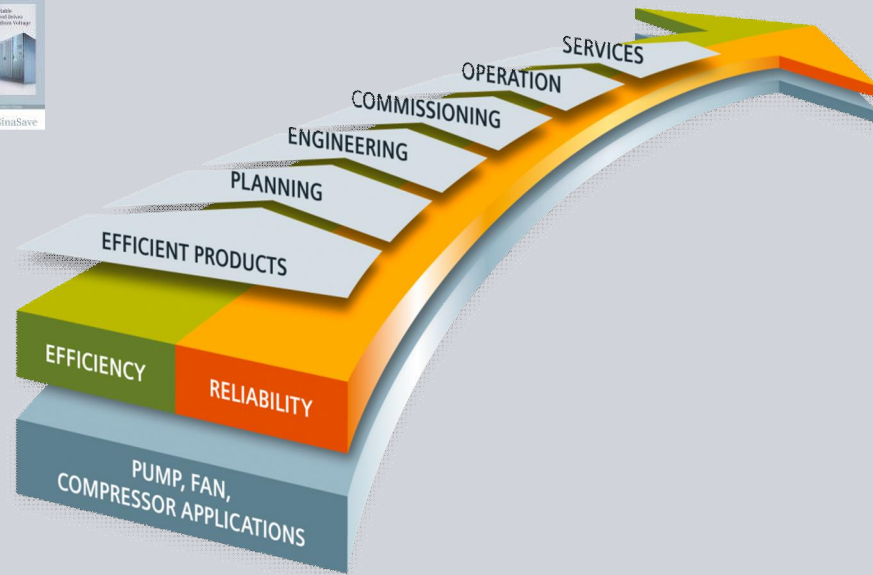
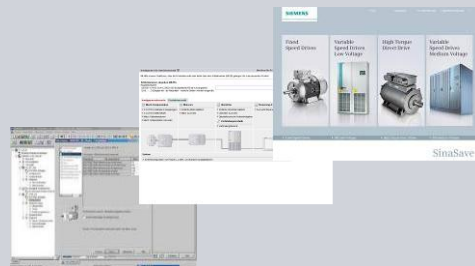
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Efficiency from the planning up to commissioning



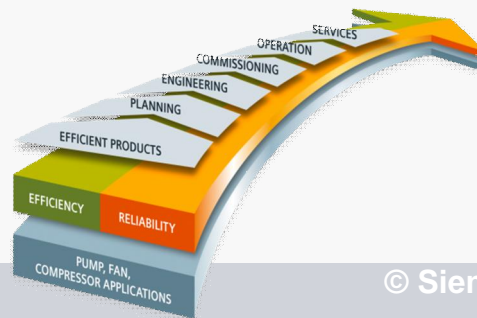
- Smart answers to customer-specific applications thanks to many years of expertise working closely with OEMs, system integrators and end customers
- Efficient tools
 - SinaSave
 - DT Configurator
 - STARTER
- Technical competence for products and systems
- We accept responsibility for interfaces up to responsibility for the complete system



Efficiency and operation



- Lower operating costs through system solutions from a single source:
 - Higher system efficiency
 - Longer service life of the overall system
 - Higher reliability of the coordinated system
- High energy saving potential for pump, fan and compressor applications:
 - Up to 60% by changing over to a complete variable-speed system
 - Implementation with minimized risks within the context of an IDS
- Fast payback time
- Integrated and seamless service solutions
- Many years of system competence



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References

Clinker production line



Overview

Project:	New 6,500 t/day clinker production line
Location:	Kolomna, Russia
Customer:	Shurovo Cement, Holcim Group
Application:	Fans, main kiln drive, classifiers



Products

- 3 H-compact PLUS medium voltage motors
- 3 SINAMICS Perfect Harmony medium voltage drives
- 3 SINAMICS G150 low voltage drives
- 24 SINAMICS S120CM low voltage drives
- 8 N-compact low voltage motors
- 3 H-compact low voltage motors

Project - Highlights

- Seamless integration into existing control and management system
- Reduction of energy consumption and emissions
- High plant reliability and availability
- Lower maintenance costs

References

Combined heat and power plant

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Overview

Project: Combined heat & power plant

Location: Warszawa-Siekierki, Poland

Customer: Vattenfall Heat Poland S.A.

Application: Boiler feed pumps

Products

- 4 water-cooled SINAMICS GM150
- 4 H-compact PLUS motors



Project - Highlights

- Converter output power 3.300 kW
- Motor speed range: 4.000 – 4.570 rpm
- Energy saving and reduced operational costs
- Reduced mechanical stress due to better flow and pressure control with VSD operation

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References

Fan for underground mining

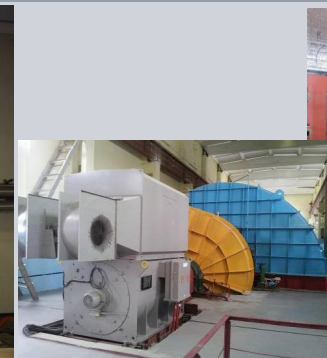
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Overview

Project: Belarußkali
Location: Belarus
Customer: Belarußkali
EPC: IGEA - Institut for Mining Electrical Engineering & Automation
Siemens Solution Partner: Simatek
Application: Fan for underground mining

Products

- 1x Three-phase-motor with permanent magnet rotor & antifriction (PEM)
 - 4 MW, 6 kV, 450 A,
 - Efficiency: 98%; Power factor: 0,9
 - Shaft height: 800 mm, Design: IMB3, Protection: IP56
 - Torque: 800 kNm
- 1 x SINAMICS Perfect Harmony
 - 6kV / 6,1kV / 500A



Project - Highlights

- The plant operates with 400 rpm, max. 500 rpm for continuous operation have been tested
- 34% energy efficiency compared to the old plant
- PEM synchronous motor:
 - Permanent magnets reduce losses and thermal stress on the rotor → increased overall efficiency
 - PEM produces extremely high torque; magnetic forces in the rotor do not need to be induced but are contained permanently.

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Thanks for your attention

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