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**DRIVE SYSTEMS
FOR THE STEEL PROCESS**

CASE STUDY: SMS group GmbH, plant and machine manufacturer



Reversing Rolling Mill
Steelworks complex in Bahrain

UNICASE Gear Units
Durable under heavy load

Roller Table Drives
Resilient against shock loads

Comprehensive Portfolio
Standardized drive solutions
for the metal industry

Large Industrial Gear Drives
Powerful and highly versatile

- NORD DRIVESYSTEMS Group**
- Family business from Bargteheide near Hamburg with 4,000 employees
 - Drive solutions for more than 100 branches of industry
 - 7 production locations worldwide
 - Present in 98 countries on 5 continents
 - More information: www.nord.com

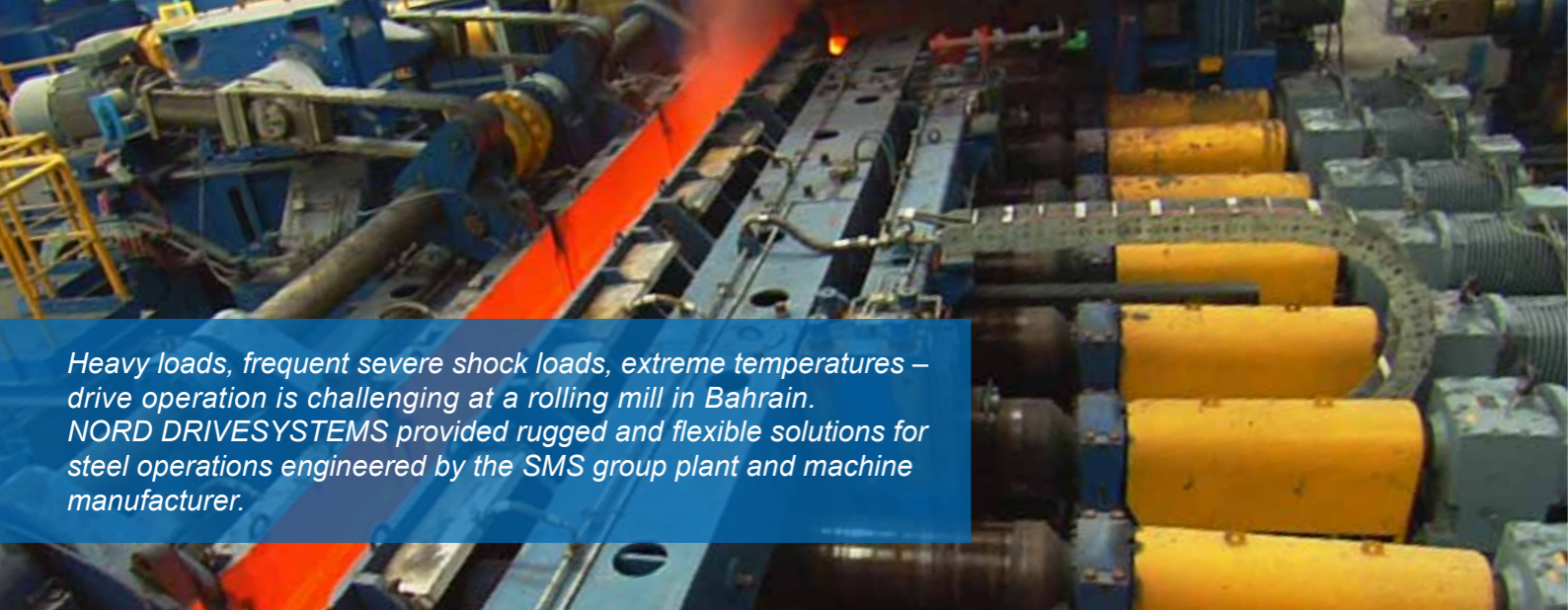


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Heavy loads, frequent severe shock loads, extreme temperatures – drive operation is challenging at a rolling mill in Bahrain. NORD DRIVESYSTEMS provided rugged and flexible solutions for steel operations engineered by the SMS group plant and machine manufacturer.



“NORD provides a vast and differentiated range of gears for flexible drive solutions in our industry. And we can always get directly in touch with NORD’s steel applications experts.”

Guido Sonnenschein, SMS group Drive Specialist

PROJECT CHALLENGE

Recently, a large steelworks facility was established in the Hidd industrial zone in the Kingdom of Bahrain. Its approximate annual production of 600,000 tons of steel is to cover one sixth of all previous beams and section imports of the entire Middle East. As part of the Hidd complex, the SMS group plant and machine manufacturer designed and installed a heavy section rolling mill with state-of-the-art equipment.

Rough Conditions. The plant required various gear drives designed to handle the typical load cycles in rolling mills, most notably S5 intermittent duty, as well as S9 duty with non-periodical load, speed variations, and frequent overloads. 16-ton beams pass on roller tables through the reversing mill. The many drives installed along these tables must cope with the shock

impact of alternating acceleration and deceleration of the blanks. Additionally, the roller table drives in Hidd are faced with extremely high ambient temperatures due to the climate of the Gulf state.

Standard drives preferred. The SMS group also needed other resilient and powerful drive solutions for additional machinery such as a straightener with double-supported rollers that rely on hydraulic adjustments. The engineering company was determined to keep the need for special drive solutions to a minimum, and therefore required a comprehensive portfolio of units they could use in as many applications as possible. The SMS group also demanded flexibility for the drive solutions.

APPLICATION SOLUTION

NORD DRIVESYSTEMS supplied drive solutions featuring an extremely rugged design: enclosed in single-piece housings, gears with helical teeth machined and finished to rigorous standards provide superior stability even under high radial and axial loads. Greater durability and load capacity can be achieved by utilizing heavy duty output bearings and reinforced shaft materials (ex. 42CrMo4). In addition, shock-absorbing housing materials help reduce the impact of abrupt rough movements. Synthetic lubrication and various paint coating solutions are available to withstand the extreme ambient conditions and operating temperatures.

Versatile to use. In the rolling mill, the SMS group plant and machine manufacturer installed more than 600 roller table drives. These include standard parallel shaft gears for chain

conveyors at the cooling bed, where they replaced special drives that were previously needed for this application. NORD fitted four high-torque industrial gear drives used for straightening the heavy blanks in front of the rollers with input and output shafts on both sides. This means, they can be used for both shaft positions. Encoders supplied by SMS were fitted to special shafts with appropriate bores.

Extensive industry expertise. NORD DRIVESYSTEMS has been collaborating with the SMS group plant and machine manufacturer for more than a decade and provides versatile steel and metal industry drive solutions for applications ranging from roller tables to cooling beds, from shear lines to casting ladles, and for many other applications common in the metal industry production processes.



Durable. Even in heavy-duty applications, single-piece UNICASE™ gear cases ensure superior longevity.



STEEL INDUSTRY
Roller tables
Chain conveyors
Straightening machines



LARGE INDUSTRIAL
GEARMOTORS
SK 7207
SK 13307



HELICAL IN-LINE
GEARMOTORS
SK 72

FOCUS ON THE CUSTOMER



The SMS group comprises a number of global plant and machine manufacturers for steel and nonferrous metals processing. From iron making to metallurgy, from rolling mills to conveyor systems, from pipe rolling mills to thermal engineering: the SMS group covers all sectors, including electrics and automation as well as services. SMS group and SMS Concast cooperated in building the minimill in Hidd.



SMS group GmbH, Mönchengladbach (Germany)

FOCUS ON THE PROJECT

The reversing rolling mill in Bahrain uses 622 roller table drives and a number of other NORD drive solutions, including industrial gears in a straightening machine for the rolling stock. These systems meet the demanding functional requirements in tough conditions due to their:

- rugged UNICASE™ housings that ensure a long service life,
- gear teeth of superior quality precisely machined by NORD,
- design flexibility, such as optional dual input and output shafts.



APPLICATION VIDEO

