WOLONG

Power your future

LARGE DRIVE SOLUTIONS

for Cement Applications

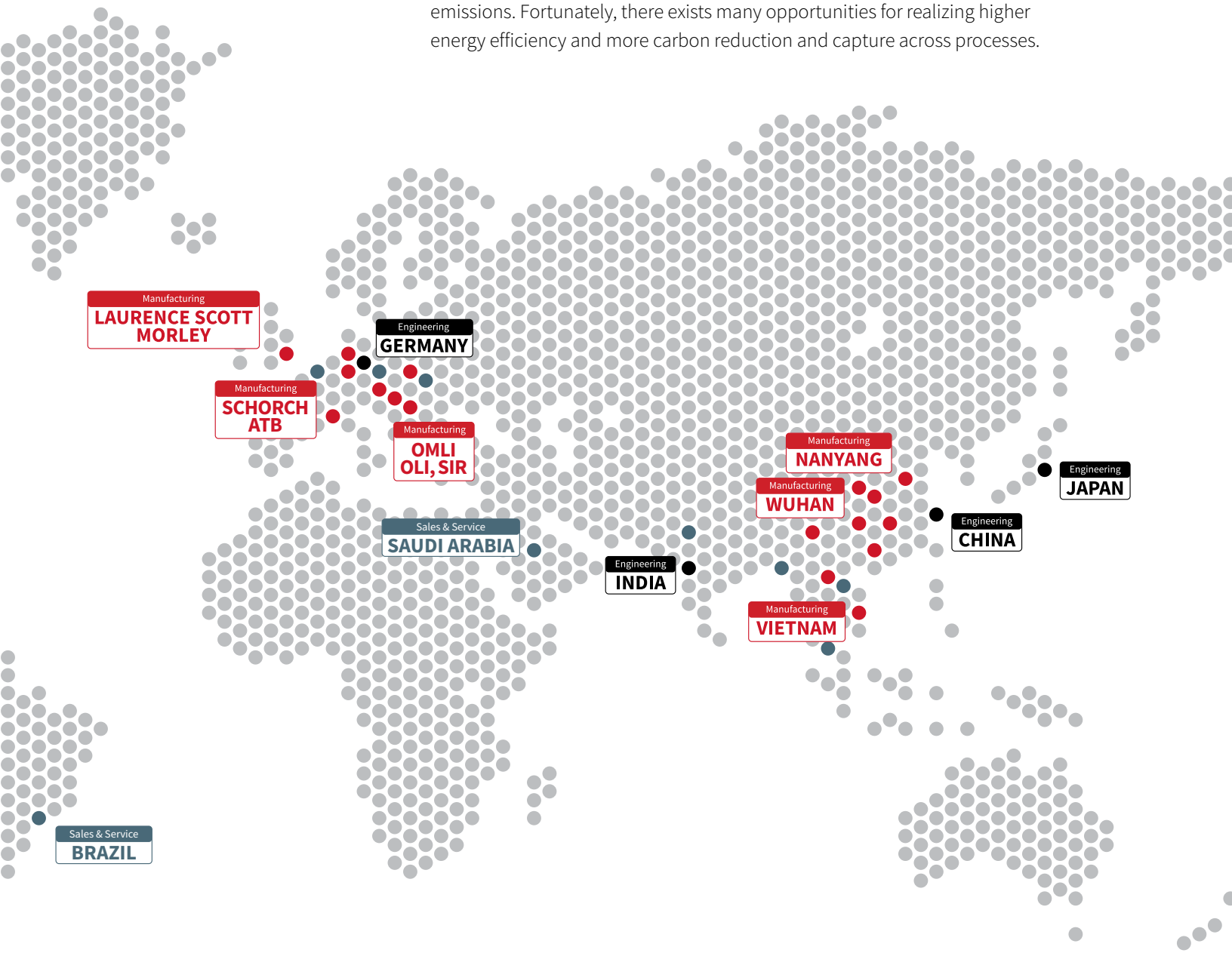
Wolong Large Drives
Company Introduction

The Wolong Electric Large Drive Group (LDG) is a complete business division including heavy rotating machine companies, services, engineering, and research teams around the globe. Business units such as Nanyang ATB, Wuhan ATB, Anshan Rongxin, SCHORCH, MORLEY, SP, LAURENCE SCOTT, SEVER, FOD and others, deliver innovations in rotating machine and drive technologies.

Through enterprise technology centers and laboratories, staffed with our highly experienced and accomplished engineering teams, Wolong LDG has producing high quality equipment and solutions for the cement industry.

Various HV/LV EXP Motors
General Purpose Motors
Specific-Use Motors
Synchronous / Asynchronous Generators
LV/HV EXP Inverters
HV Soft Starters
Transformers
Special Power Supplies
DC Power Transmission
Control Systems
Power Electronic Components
Instrumentation

Globally, the cement industry contributes 7% of total carbon emissions. If the global cement industry were a country, it would be the third largest emitter of carbon after China and the US. Carbon dioxide generated from limestone calcination to produce quicklime accounts for about 55-70% of total production process emissions. The high-temperature calcination process burns fuel which also accounts for about 25-40% of total production process emissions. Fortunately, there exists many opportunities for realizing higher energy efficiency and more carbon reduction and capture across processes.



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Our products have complete certifications from many international authorities such as UL and CC in the US, CSA in Canada, IEC Ex in Europe, ATEX and CE in the European Union, SABS in South Africa and TESTSAFE in Australia.

Our manufacturing sites are quality certified for the latest ISO9001, ISO10012, OHS18000, and ISO14001 requirements.

Wolong plays a leading role in technology globally. It is a world leader in vibration, low starting current, and HV EXP motors. And the company is the third largest MV/HV motor supplier in the world.

Our company has provided high performance solutions globally for a wide range of industrial cement processing applications engineered to improve distributed energy consumption, stabilize load, improve reliability and power quality.

- Energy efficient auxiliary drives
- Conveying systems
- High voltage permanent magnet drives
- Variable frequency crushing drives
- Rotary kiln drives and blowers
- Heat capture power generation systems
- Active monitoring and control systems

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Wolong Large Drives
Meeting Application Requirements

Global cement industries deliver infrastructure and building medium products for many applications. The production stream is broad covering a wide range of processes, including material extraction, moving, crushing, decomposition, cooling, mixing, development and production, gathering, storage, transportation, and packaging. Many of the applications in these processes are in severe environments, with fine particulates, flammable and toxic materials and vapors. The complexities and challenges are high. So therefore the equipment involved must meet rigorous safety and operational standards and requirements.

Conveyors	Material Moving	Starting restrictions ASD applied IEEE-841, NEMA, IEC, ANSI
Blowers	Cooling Heating Ventilation	Belt load specifications IEEE-841, NEMA, ANSI
Crushers	Crusher Raw Grinder	High Inertia Starting Conditions and Frequency Vibration Restrictions VFD Compatible NEMA, IEC, IEEE, ANSI
Augers	Rotary Kiln Ball Mill Drills	Starting Conditions and Frequency VFD Compatible NEMA, IEC, IEEE, ANSI
Pumps	Booster Jockey Water injection Transfer	Starting restrictions ASD applied Vertical thrust loads Low Inrush IEEE-841, NEMA, ANSI
Mixers	Twin shaft Vertical axis Drum	Belt load specifications Starting restrictions ASD applied / Low inrush Special shaft and load designs Torque pulsation High rotor inertia IEEE-841

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Product Capabilities

LV Extra Severe-Duty Motor

This versatile and robust design is ideal for a wide range of challenging industrial applications and environments. Versions available to meet IEEE 841 and 661 requirements.

Power	0.75 - 300 HP
Voltage	230/460, 460 V
Poles	4 - 8
Frequency	60 Hz

LV/MV Vertical Pump Motor

Combines extra severe duty engineering with advanced thrust and cooling technologies.

Power	5 - 1750 HP
Voltage	200 - 4000 V
Poles	2 - 6
Frequency	60 Hz

Large Extra Severe-Duty Motor

This versatile and robust design is ideal for a wide range of challenging industrial applications and environments.

Power	150 - 2500 HP
Voltage	460 - 4000 V
Poles	2 - 6
Frequency	60 Hz

Direct Current Motor

A reliable lifeline to driven equipment and a workhorse for production.

Power	1 - 2000 HP
Voltage	180 - 600 V
Speed	300 - 3600 RPM

MV Variable Frequency Drive

Highly reliable and safe multiple rectification technology through fan and control system redundancies and an optional unit bypass.

Output Power	1000 - 5500 HP
Frequency	50/60 Hz
Input Voltage	4160 V

Synchronous Motor

Reliably and efficiently drives slow speed and high torque reciprocating compressors.

Power 450 kW - 50 MW
Poles 12 - 40

HV Asynchronous Motor

Has a broad application range excelling in severe environments.

Power 220 kW - 31.5 MW
Voltage 6 kV, 10 kV
Poles 2 - 12

Low Starting Current Motor

Eliminates need for additional starters, controllers and switchgear requiring less maintenance, and a low impact on the power supply line.

Power 250 - 1800 kW
Voltage 2750 V - 13.8 kV
Poles 2 - 20

HV Variable Frequency Drive

Highly reliable and safe multiple rectification technology through fan and control system redundancies and an optional unit bypass.

Power 200 kW - 40 MW

HV Solid State Soft Start

Has a broad application range delivering flexible control with small impact on the power grid. They help extend equipment life and reduce maintenance.

Power 100 kW - 50 MW
Voltage 3 - 13.8 kV

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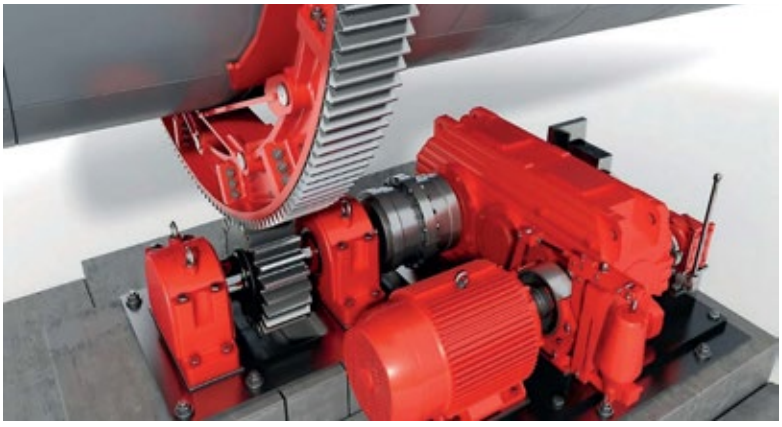
Global Cement Project Experience

Rotary Kiln Drives

10kV / 2800kW frequency conversion drive project for a large cement processor.



Rotary Kiln Motors

Recent designs include the adoption of permanent magnet direct drives instead of traditional wheel transmissions to improve system efficiency by 10%+.

Heat Capture for Power Generation

Wolong accomplished lime kiln waste heat recovery and utilization through an engineered power system. As a result, the tail flue gas temperature was reduced from 170°C to 100°C. The head flue gas temperature was also reduced from 260°C to 100°C while an additional 1100kW was generated and fed back into the plant grid.

Efficient Ball Mill Equipment

Wolong engineered and installed a permanent magnet mill drive system including VFD's ranging from 250 - 5000 kW with totally enclosed fan, tube and air-air cooled frames. The project on the right involved a 630 kW, 8 pole, 10 kV motor.

Efficient Conveying Equipment

Wolong has integrated motors/drives and motors/drums in conveyor applications to realize multiple operational benefits:

- Higher energy efficiency
- Higher torque
- Heavy load start
- Low start-up current
- Fast dynamic response
- No need for gearbox and couplings

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GMS32030-EN (4/2025)