



At NORD Drivesystems, sustainability is intrinsically embedded within our engineering philosophy through high-efficiency product designs and resource-conscious manufacturing processes

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Q-1. What key technological advancements has NORD integrated into its latest product portfolio to address evolving customer requirements?

Ans. Our latest product portfolio incorporates ground breaking technological advancements centered on three strategic pillars: energy efficiency, compact mechanical integration, and Industry 4.0 digital intelligence. The cornerstone of this innovation is our ultra-efficient IE5+ Permanent Magnet Synchronous Motor (PMSM) technology, which delivers a constant efficiency of up to 95% across a broad torque range, thereby minimizing Total Cost of Ownership (TCO). We have further advanced this with our DuoDrive concept, which seamlessly integrates an IE5+ motor and a single-stage helical gear unit into a single compact housing to maximize power density and reduce mechanical wear. On the control front, our decentralized drive electronics—including the NORDAC PRO and NORDAC ON variable frequency drives—feature integrated PLCs, multi-protocol Ethernet connectivity, and advanced sensor-based condition monitoring capabilities for predictive maintenance. When combined with our proven, single-piece UNICASE housing

design, these innovations ensure high precision, dynamic speed regulation, and maximum uptime even in the most demanding operational environments. Additionally, our Industrial Gear Unit MAXXDRIVE can be equipped with intelligent condition monitoring systems to further enhance reliability, predictive maintenance, and operational efficiency.

Q-2. How does NORD Drivesystems assess the current demand landscape for high-performance components and spares within the Indian construction equipment sector, and what are the primary market drivers expected to shape growth through 2030?

Ans. From NORD Drivesystems' perspective, the Indian construction equipment sector is witnessing an unprecedented surge in demand for high-performance drive solutions—specifically heavy-duty industrial gear units, IE3/IE4 energy-efficient geared motors, and genuine OEM spares. The rigorous operational environments characteristic of concrete batching plants, crushing and screening facilities, and heavy-material handling applications necessitate continuous duty cycles. This reality is compelling OEMs and fleet operators to transition from

frequent, reactive maintenance schedules toward a strategic focus on Total Cost of Ownership (TCO) and maximum asset uptime. Looking ahead to 2030, this robust growth trajectory is primarily underpinned by transformative government infrastructure initiatives, including the PM Gati Shakti National Master Plan, rapid urban development, and large-scale transportation projects. Concurrently, the industry-wide mandate for equipment electrification, digital condition monitoring, and elevated operational safety standards is driving the requirement for modular, high-torque, and energy-dense drive systems. These systems must be engineered to withstand harsh Indian job-site conditions while ensuring rapid spare parts availability to mitigate costly operational downtime.

Q-3. Is NORD embedding smart sensor technology or predictive maintenance capabilities into its product offerings, and what tangible benefits do these features deliver to machine owners and operators?

Ans. Yes, we have directly embedded smart sensor architecture and condition monitoring capabilities into our product line through an intelligent, drive-based Industry

4.0 approach. By leveraging the integrated PLC functionality within our variable frequency drives - such as the NORDAC PRO and NORDAC FLEX - our drive units natively process data from physical temperature and vibration sensors, as well as proprietary "virtual sensors" that calculate critical operational parameters like optimal oil aging without requiring additional hardware. For machine owners, this capability facilitates a paradigm shift from reactive or time-based servicing to precise, status-oriented predictive maintenance. Owners gain real-time visibility into drive health, receive automated early warnings for overload conditions or mechanical wear, and can schedule maintenance interventions during planned production breaks. This proactive approach effectively eliminates catastrophic equipment failures, significantly extends overall machinery lifespans, and lowers Total Cost of Ownership (TCO) by ensuring maximum operational uptime.

Q-4. In what ways are NORD's manufacturing processes and product design philosophies contributing to enhanced fuel efficiency, reduced emissions, and alignment with circular economy principles?

Ans. At NORD Drivesystems,

sustainability is intrinsically embedded within our engineering philosophy through high-efficiency product designs and resource-conscious manufacturing processes. From a product perspective, our development strategy prioritizes eco-design and operational efficiency—leveraging IE4 and IE5+ permanent magnet synchronous motors paired with decentralized variable frequency drives to substantially reduce energy consumption and greenhouse gas emissions throughout the equipment lifecycle. Furthermore, our robust UNICASE single-piece housing design and modular product architecture are engineered for enhanced repairability, ease of disassembly, and extended service life. This approach facilitates the retrofitting or complete recycling of individual components at end-of-life, aligning with circular economy principles. Within our manufacturing facilities, we actively contribute to emission reductions by deploying energy-optimized machining techniques, utilizing low-emission, eco-friendly water-based painting systems, and maintaining strict waste recovery protocols that retain metal alloys and process materials within closed-loop production cycles.