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Bonfiglioli @ SPS Nuremberg: mechatronics tailored solutions for industrial automation

Calderara di Reno, Bologna, 12th of November 2024 – Bonfiglioli is present at SPS Nuremberg, the leading trade show for industrial automation, taking place in the German city from November 12th to 14th. At booth 450 in Hall 3A, Bonfiglioli showcases its comprehensive mechatronic proposal covering **AMRs, material handling, logistics automation** and **packaging** along with **IIoT** capabilities. Eyes also on **electronics**, with the solutions developed by Selcom.

AMR in motion

At the booth, visitors have the opportunity to see a Helko **AMR in action**, result of the cooperation between Bonfiglioli and Eureka System S.r.l. Helko is **powered by Bonfiglioli's motorized wheels and an electric drive** in a tailormade approach. For the AMR and AGV market, Bonfiglioli has also developed the **BlueRoll Platform**, featuring a **compact low voltage precision planetary gear motor of the BMS Series**, which is compatible with electronic drives including 24 or 48-volt batteries. The BMS Series offers compactness – it's a unique piece without flanges - high torsional stiffness, and low moment of inertia, making it ideal for precision applications requiring accuracy and efficiency. With its space-saving design and range of options, the BMS Series boosts performance by combining the strengths of permanent magnets, synchronous low-voltage, three-phase alternating current motors and precision planetary gearboxes.

Bonfiglioli's Expertise drives optimized material handling operations

For Material Handling, i.e. **smart conveyors**, three helical bevel gearmotors of the A Series are presented in the form of a demo, each of them with three different torque ranges – A10, A20 and A30, respectively coupled with the motors MXN, BSR and MX – and a sensorized DGM – MPM modular inverter. The systems showcased reflect the wide range of gears and motors made available by Bonfiglioli and the possibility to connect one single EDGE PC to several GMIs. The compact and worldwide certified IE3 MXN motor boasts a very high voltage range and is the best solution for automation application. The combination between the **BSR highly efficient reluctance synchronous motor** – free of rare earth elements and classified in the **IE4 efficiency class** - and the **DGM decentralized inverter represents a plus capable of improving the energy efficiency** and the TCO of machines and processes. MXN is one of the motors Bonfiglioli is focusing on the most: continuously updated and improved, it is set to eventually incorporate reluctance technology in the future. The system is completed by the **Z-Sensor**, which is **directly connected to the inverter**, without applying additional cables between inverter and PLC. This sensor enables the collection of on-site data which can be transmitted via a Profinet Fieldbus and forwarded with OPC-UA to Bonfiglioli's IIoT system. The result is the continuous monitoring of the gearboxes with the aim of preventing any failure and malfunction of the entire system.

Smart solutions for streamlined packaging activities

For packaging machinery, Bonfiglioli offers a variety of dynamic, compact and modular drive solutions ideal for Horizontal and Vertical Fill Form Seal (HFFS and VFFS) machines. These systems ensure seamless material transfer for sealing operations. A dedicated demo shows two **solutions for managing two axes** - both featuring a **DGM decentralized IP65 inverter** and a brushless **BSR**

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synchronous reluctance motor. One operates in **sensorless** Point-to-Point Positioning Mode (PTP), enabling object movement detection without encoders, while the other, tested in the field, utilizes torque mode and is ideal for pre-stretch operations in wrapping machines. The BSR motor is synonym of high adaptability, making the retrofit and revamping of old energy-intensive motors easier, in favour of greater energy efficiency.

Automation systems: precision, synchronism and high efficiency

At the booth another live demo shows a delta robot drive paired with two belt conveyors, in a complete system combining **precision gearboxes, brushless motors and drives**, designed by Bonfiglioli to move components and objects. Easily integrable into packaging or material handling machines or lines, it guarantees accuracy and dynamics. The BMD motor integrated in the system is paired with a TQ precision planetary gearbox of the performance line and the AxiaVert inverter. The FSoE (Fail Safe over EtherCAT) included in the Motion variant of AxiaVert allows, in combination with the EtherCAT communication module, the easy integration into Functional Safety communication environments. The TQ gearbox is characterized by an extreme torsional stiffness, it ensures ideal path accuracy even in case of frequent overloads. Its design is dedicated both to continuous and intermittent duty cycles and thanks to the IP65 certification it can be used even in harsh environments.

AxiaVert: Bonfiglioli's premium frequency inverter

A special corner is dedicated to the **smart frequency inverter AxiaVert, offering integrated functional safety, precision and versatility** for various industrial processes. AxiaVert is featured in two hybrid systems: one combined with a BMD servomotor – coupled with a TQ precision planetary gearbox - and another with a BMS servo gearmotor, both using innovative single-cable technology and operating in PTP or Master/Slave modes. The breakthrough innovation is the shielded single-cable solution which simplifies installation and saves space, with only one cable and connector required between the drive and the motor. The single cable incorporates the start-up and feedback function through the encoder and is a non-catalog configuration that can be personalized based on the customer's needs.

Custom high-tech electronic solutions

Showcased at the event are also the **custom electronic solutions by Selcom**, part of the Bonfiglioli Group since 2023. Selcom offers a wide range of **high-performance mechatronic and system integration solutions**, emphasizing its dedication to industry-leading standards and personalized client customization. Highlighted products include PLCs, sensors, TFT touch screens, DC-DC converters for battery applications, inverters, and a generator for induction welding—demonstrating Selcom's versatile, client-tailored offerings. Additionally, Selcom presents its expertise in system integration with custom-designed and powered electrical cabinets, emphasizing once more its growing collaboration with Bonfiglioli to deliver comprehensive, seamless solutions across applications.

Bonfiglioli unlocks Industry 4.0, enhancing efficiency with IIoT solutions

Bonfiglioli tackles major challenges in industrial machinery, such as downtime and high maintenance costs, by providing IIoT solutions that include **Condition Monitoring** and **Predictive Maintenance**. Their IoT platform utilizes Z and W sensors to monitor gearboxes and motors, collecting vital performance and energy data. The Z-Sensor combines accelerometer, magnetometer and temperature functions, while the W-Sensor wirelessly transmits external data. Paired with an IE3 asynchronous MXN

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electric motor and a CP coaxial gear unit from the EVOX platform, these components ensure high efficiency and flexibility.

The participation of Bonfiglioli in SPS Nuremberg underscores its commitment to innovation and excellence in the automation industry. By showcasing cutting-edge technologies and solutions, Bonfiglioli continues to position itself as a leader in the market, dedicated to meeting the evolving needs of its customers.

Bonfiglioli Group

Bonfiglioli is a worldwide designer, manufacturer and distributor of a complete range of gearmotors, drive systems, planetary gearboxes and inverters, which satisfy the most challenging and demanding needs in industrial automation, mobile machinery and renewable energy. The Group serves more industries and applications than any other drives manufacturer and is a market leader in many sectors; its three business areas - Industry & Automation Solutions, Mobility & Wind Industries, Selcom Group - embody all the expertise and experience acquired over the years in the respective industries. Established in 1956, Bonfiglioli operates worldwide in 80 countries with 23 commercial sites, 18 production sites, a wide distribution network comprising more than 550 partners, and can count on over 4.700 professionals. Excellence, innovation, and sustainability are the drivers behind the growth of Bonfiglioli as a company and team and represent the guarantee of the products and services quality offered its clients. Further information is available on the website www.bonfiglioli.com.

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