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Drive India

The SEW-EURODRIVE Customer Magazine

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Dear Reader,

We are excited to participate in the Automation Expo 2024, happening at BEC in Mumbai from 21st to 24th August. Please visit us at Hall 1 where we'll be showcasing some exciting motion control and logistics application models from our state-of-the-art product line.

We often hear from OE customers that the industry they are catering to can't afford a premium brand like SEW. Our long term partnership with Best Enterprises featured in our customer story proves otherwise. Our advanced servo systems and drive solutions have greatly boosted productivity and minimized wastage in the matchbox industry, demonstrating exceptional efficiency and cost-effectiveness.

In our product story section, we present the MOVIMOT® flexible inverter, an advanced decentralized drive solution for compact applications. This innovative unit from SEW-EURODRIVE enhances system efficiency and flexibility, making it ideal for various industries. Its design simplifies installation and maintenance, offering a streamlined and effective approach to motion control.

Our feature article on Hannover Messe 2024 showcases SEW-EURODRIVE's latest innovations under the theme "Sustainable Thinking, Modular Drive." Our solutions, designed to help industries like cement manufacturing reduce energy consumption and carbon footprints, received a positive response, underscoring our commitment to efficiency and sustainability.

I wish you happy reading!



S. Vasudevan
Managing Director, SEW-EURODRIVE India

Driving Innovation: SEW and Best Enterprises' journey in matchbox manufacturing automation

A matchbox retails at 1 rupee, which is quite an amazing achievement of low cost manufacturing. Best Enterprises, a leading Chennai based equipment manufacturer supplying to this industry has the challenge of delivering reliable and affordable solutions to automate the matchbox manufacturing process for over two decades. For 13 years now Best Enterprises has chosen SEW Geared motors and basic electronics to deliver reliable automation solutions for the end of process, matchbox filling and packing machines. Recently they have upgraded their machine combining a computer-vision-based matchstick counting, filling, and packaging machine with SEW-EURODRIVE's proven and reliable servo systems. This system ensures very accurate counting and high build quality, establishing Best Enterprises as a next generation supplier.

Why SEW-EURODRIVE?

SEW-EURODRIVE as a brand stands for reliability and offers motion control solutions suitable for both simple and complex machines. Best Enterprises has been using SEW drive systems for over 13 years, from basic auxiliary machines for matchbox manufacturing to the high-speed, high-precision machines they developed in 2017. Throughout this development, SEW India has worked closely with Best Enterprises, providing solutions and support at every stage.

Technological advances in Matchbox making

A matchbox filling machine involves several precise operations. Inner and outer boxes and matchsticks are loaded into 3 separate hoppers. The matchsticks must be sorted head up and filled into the inner tray in the correct quantity. The inner box with filled matchsticks is then aligned and slid into the outer cover. The completed matchboxes are subsequently bundled and packed. Each operation requires high precision to ensure quality and functionality. The main challenge lies in synchronizing the various auxiliary

systems. The entire packaging system requires high positioning accuracy, which is crucial for the machine's performance.



Working together to raise the bar

To achieve a higher level of precision in the rotation of the CAM shaft, SEW recommended using a servo planetary gearbox and MOVIMOT®. This combination provides a finite ratio, which enhances positioning accuracy during continuous operation. SEW's servo planetary gearbox with reduced backlash, coupled with the MOVIDRIVE®

servo controller, was implemented to manage the sorting, counting, filling, and packing processes, achieving the desired accuracy. Additionally, to protect the system from power fluctuations, SEW supplied a converter that delivers a constant 500 V DC to the DC Bus of the MOVIDRIVE® servo controller from a single-phase AC input. This ensures smooth operation regardless of the power supply conditions at the factory site.

Key Benefits

- Enhanced accuracy of entire machine
- Reliable operation, reducing downtime and increasing production
- Universal system for different electric supply
- Single source of supply for various machine

Long-term association

Best Enterprises received their first gear motor from SEW in 2011. Over time, as Best Enterprises introduced various new machines, their latest version required an indexer gearbox to manage the CAM shaft rotation. SEW recommended an induction gear motor with a forced cooling fan, which has been successfully implemented and is running efficiently at various end customers.

Technical Specifications

Description	Technical details
PSKF822 CMP80M/BP/PK/AK1H/SB1	Torque: 819 Nm, Speed: 64 RPM
PSKF822 CMP80M/BP/PK/AK1H/SB1	Power: 11 kW
R87 DRS90L4BE5HR/MM30/MO/V	Torque: 715 Nm, Speed: 2 – 40 RPM
K67 DRN90L4/BE2HR/TF/V	Torque: 375 Nm, Speed: 38 RPM

“For more than 10 years, we have relied on SEW gearboxes in all our packaging machinery, and have not received any major complaints from our end-users. This demonstrates the remarkable durability and precision of SEW products. SEW's commitment to innovation and excellence aligns perfectly with our values, making them a trusted partner in our production process.”

R. Solaiappan, Proprietor

MOVIMOT® Flexible Inverter: The Solution for Compact Application



SEW-EURODRIVE has introduced the MOVIMOT® flexible decentralized inverter from the MOVI-C® portfolio. This ultra-compact unit solves accessibility issues by allowing easy mounting near any motor. Its high overload capacity prevents oversizing in conveyor application, thereby reducing the overall size of the installed infrastructure.

Introduction:

The MOVIMOT® flexible system consists of a decentralized inverter and a connection box with a field distributor function. It can be combined with SEW-EURODRIVE's synchronous/asynchronous drives (with/without encoder). The field distributor allows the decentralized inverter to be mounted separately from the motor, ensuring easy accessibility for commissioning and maintenance. Its compact mounting position provides maximum flexibility.

With an overload capacity of up to 300%, it allows for optimal motor capacity utilization and reduction of the connected load. The system features single-cable technology for power supply and data transfer, with a digital encoder for both synchronous and asynchronous motors. The MOVILINK® DDI (digital data interface) transfers motor information like power, brake, encoder, and diagnostic data to the drive.

MOVIMOT® flexible Logistics variant

A special variant for the logistics industry has been designed to be highly cost-optimized and simplified. This variant features integrated local operation through a front module design and utilizes a connector pattern with Han®Q plug connectors for power and motor connection. It offers simple configuration, fast startup, and product features that are optimally adapted to meet the needs of the logistics industry.

The benefits for you

- Versatile

- All types of synchronous and asynchronous motors can be controlled
- Optional motor encoders or mechanical brakes can be adapted

- Intelligent

Information from the electronic nameplate as well as braking and diagnostic data are transmitted directly to the inverter.

Simple, Reliable and Robust Installation

Digital connection with a standardized hybrid cable enables power supply as well as data connection between decentralized inverter and motor.



Safe

Integrated safety function STO (Safe Torque Off) in PL e. Binary control or optionally via PROFINET®/PROFIsafe.

Applications

- Parcel logistics and intralogistics including baggage handling at airports

- Horizontal & Vertical conveyor units
- Bagging handling
- Lifting module

- Food and beverage industry

- Bottle transport
- Container conveyors
- Stacking units

- Automotive industry

- Skid conveyors
- Lifting/lowering conveyors
- Rotary modules

Technical Specifications

Connection voltage	3 × AC 380 V – 500 V at 50/60 Hz
Nominal power	0.55-7.5 kW
Control modes	<ul style="list-style-type: none"> - V/f: Highly robust for asynchronous motors without encoders - VFC^{PLUS}: Extremely versatile for asynchronous motors with and without encoders - CFC: Highly dynamic for asynchronous and synchronous motors with encoders - ELSM®: Highly efficient for synchronous motors without encoders
Motor types – SEW	Synchronous and asynchronous drives.
Communication/ installation variants	<ul style="list-style-type: none"> - DFC – Direct Fieldbus Communication (PROFINET, EtherNet/IP™, Modbus TCP, POWERLINK / CiA 402) - DBC – Direct Binary Communication - – DAC – Direct AS-Interface Communication– DSI – Direct System Bus Installation (EtherCAT® / SBusPLUS, EtherCAT® / CiA 402)
Digital and analog inputs/outputs	<ul style="list-style-type: none"> - DFC / DSI: For MMF3 only: Up to 8 digital inputs and up to 2 digital inputs or outputs - DBC: 4 digital inputs / 1 relay output and 1 analog input (0..10 V, 0..20 mA, 4..20 mA) - DAC: 4 digital inputs / 1 relay output
Plug connectors (All plug connectors are daisy chain capable.)	<ul style="list-style-type: none"> - AC 400 V connection for supplying devices with M23 plug connector - Safe disconnection (STO) with M12 plug connector (5-pin, A-coded) - DC 24 V input for backup voltage with M12 plug connector (5-pin, L-coded) - Fieldbus connection, Digital inputs/outputs - Motor output with M23 plug connector.
Brake control option	Integrated HV brake control for 120 V, 230 V, and 400 V, Third-party brake control – 24 V brake control
MOVILINK® DDI digital data interface	High-performance digital data connection between motor and inverter
Functional safety	<ul style="list-style-type: none"> – Integrated STO (Safe Torque Off) safety function to IEC 61800-5-2 – Safety Integrity Level 3 to EN 61800-5-2: 2017, EN 61508: 2010 – PL e to EN ISO 13849-1: 2015
Certifications/ conformity	CE (Europe) / UkrSEPRO (Ukraine) / RMC (Australia) In preparation: UL-approved (USA and Canada)

SEW unveils sustainable industry solutions at Hannover Messe 2024

Hannover Messe, the world's leading industrial trade fair took place in Germany from 22nd to 26th April. Norway was the partner country for 2024 and the main theme was "Energizing a Sustainable Industry"

With the slogan "Sustainable thinking, Modular Drive" SEW exhibited solutions for the full gamut of drive and automation requirements, with modular concepts to help a customer reduce their overall energy consumption and their carbon footprint.

Spanning an expansive 1,700 sq.m., SEW's stall offered the ideal platform to exhibit and discuss our latest developments and solutions with customers. In this feature article we highlight one key industry which is a huge energy consumer, namely the cement industry.

Efficient Drive Technology in the cement industry

SEW has displayed sustainable solutions for every stage of cement production like quarrying, crushing, mixing and storage.

Quarrying is the first step where the cycle begins with extraction of raw material which needs to be carried to the surface on a conveyor system & transported further. This requires reliable and robust drive solutions. SEW showcased X.e series helical/helical-bevel gear-units best suited for this application, having a high level of resistance, operational reliability and maintainability. Increasing the nominal torque for additional loads makes it possible to use smaller sizes, thus saving space. Up to 30 % lower oil consumption and a corresponding 87% lower churning losses makes it a significant contribution to the requirements of the cement industry in terms of sustainability. In addition, to have maximum availability and optimum performance, DriveRadar® enables continuous condition monitoring of the unit, with a range of AI assisted diagnostic tools and prognostic recommendations.

Crushing these lumps of rock to a uniform size is the next step. The crushers used for this challenging application require particularly robust planetary gear units. Several conflicting characteristics are required of these units like long service life



despite permanently high load, robust while being compact and energy efficient at the same time. For this application, SEW showcased our P2.e series planetary gear unit which meets all these criteria. Additionally high quality maintenance is a decisive factor in the service life of units in this sort of application. With our Inspection and Maintenance Service, which includes thermography, an oil check, and various other services, we can both assess the condition of your gear unit and identify potential damage at an early stage. These preventive actions have a direct effect on the durability of our gear units and the length of their service lives. A sustainable industry enjoys lasting benefits from services that have a positive impact on the service life of the drive technology.

Mixing takes place in rotary kilns under high temperature. Rotary kilns need to be driven around its own axis and SEW has showcased our proprietary segmented (8 or 12 segments) girth gear technology to meet the requirement of rotation of kilns. The segments are made of material having high

tensile strength which increases the service life, and its segmented construction makes production, transportation assembly and maintenance significantly easier.

Warehouse and storage/retrieval systems

The drive technology in the storage/retrieval system (SRS) is equipped with MOVILINK® DDI. This means that a hybrid cable (single-cable technology) is sufficient for both power supply and data exchange. In terms of safety, an integrated safety expansion card (CSA31A) allows for a safe position and thus a buffer-less operation. This is an important advantage for the building materials industry in terms of improved sustainability

SEW's preconfigured MOVIKIT® Stacker Crane software module for motion control in the SRS. With this tool, which can be parameterized without programming knowledge, the travel profile can be adjusted in such a way that a lot of regenerative energy is exchanged between the axes. This allows almost 80 percent shorter start-up time. SEW's Power and Energy Solutions (PES) also ensure greater efficiency and operational reliability in the warehouse.



Visit us at,
Hall 1 Stall I1, J1,
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