

SEW
EURODRIVE

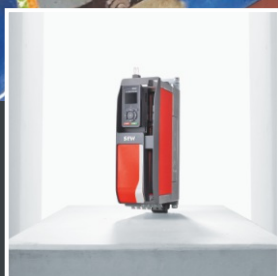
Drive India

The SEW-EURODRIVE Customer Magazine



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Dear Reader,

India's macroeconomic situation has remained favourable compared to the US, where interest rates have hit a 16-year high, and the EU, which is grappling with high inflation and interest rates alongside a contracting economy. Since we are not a decoupled economy, we might expect potential rate hikes and slowing growth going forward. At SEW India we had strong sales growth in the first half of the calendar year driven partially by backlog orders, while the challenge of sustaining incoming order growth persists.

SEW's key value proposition is offering solutions rather than products. Our customer story highlights the positive impact of our retrofit solution at Alba Packs, specializing in heavy-duty material storage bags. Facing performance issues with their final machine, Alba Packs turned to SEW for an innovative fix, achieving reduced cycle times, improved accuracy, and increased machine reliability.

Our product story features the Movidrive® Technology inverter, a member of the MOVI-C® family, a single axis inverter which can effectively control a wide variety of motor types for diverse applications.

Our feature article showcases SEW's impressive display at Hannover Messe 2023, presenting innovative solutions for a connected and climate-neutral industry. Highlights include AGVs with hydrogen technology, ECO₂ design coating-free gear motors, higher energy-efficiency, and the DriveRadar® IoT Suite. SEW's dedication to driving industry solutions was evident through various advancements and initiatives, encompassing sustainability, efficiency, and more.

I wish you happy reading!



S. Vasudevan
Managing Director, SEW-EURODRIVE India

Enhancing productivity and quality: SEW's retrofit solution for a cutting machine at Alba Packs

Tamil Nadu based Alba Packs specializes in manufacturing bulk material storage bags. These are heavy duty bags used for packing all type of materials which are in the form of powder and granules.

The manufacturing process in their facility near Tirunelveli uses HDPE/PE pellets as input. The last machine in the production process is a cutting and sealing machine installed by an OEM from Bangalore who had used non-SEW products for servomotor and controls. However, the output produced by this machine had significant quality issues.

Based on their previous positive experience in other applications, Alba Packs approached SEW for a solution as the OEM was unavailable for support.

The Application

The machine giving problems consists of a main roller, web aligner, dancing roller, and cutting roller. HDPE/PP woven fabric is unwound from the main roller by the feeder motor, aligned by the web aligner in line with the cutting roller, and the dancing roller maintains tension in the material between the feeder and cutting roller. The cutting roller feeds the material to achieve the desired length, and a high-temperature cutting knife with a pneumatic arrangement is used to cut the material. Precise positioning and accuracy is required for optimal output.

The Problem

The cutting length was inconsistent, and frequent malfunctions occurred during machine operation resulted in high rejection rates, material losses, reduced workforce productivity, and production downtime. On analysis SEW's automation team identified issues with the feeder roller positioning accuracy and malfunctions in the operational sequence.

The Solution

SEW's automation team recommended replacing the existing servomotor with an

SEW servo gear-motor controlled by a MOVIDRIVE® frequency inverter. The existing controller was replaced with SEW's MOVIPLC® and IO modules DI-16 & DO-16 to program the entire machine sequence. SEW's HMI was used to monitor the sequence and verify control parameters.

Key Benefits

SEW's comprehensive product and programming solution starting from application analysis and ending in commissioning, met Alba Packs' requirements and resulted in the following benefits:

- Reduced cycle time due to higher operating speeds
- Enhanced accuracy and precision in cutting length
- Increased reliability, significantly reducing downtime
- Safety interlocks for secure operation
- Shift-wise production data logging
- SEW as a single-source provider for a complete machine automation solution with downstream benefits for support

Technical Specifications

Sr. No.	Description	Qty	Technical details
1	Servo gearmotor KA39CMP80S/PK/AK1H/SM1	1	Torque : 33 Nm Speed : 3000 RPM
2	Frequency inverter MOVIDRIVE® B MDX61B0075-5A3-4-00	1	Power : 7.5 kW
3	Automation components MOVI-PLC® with I/O-System C DHE41B/OMC41B-T2/UOH11B	1	Motion and logic controller DHE41B version with Ethernet interface
4	HMI DOP11C-51	1	5 inch color display

“Our machine has increased productivity after modification was suggested and executed by SEW team. We are thankful to the entire SEW team for this solution.

G. Subbiah - Technical Manager, Alba Packs Pvt. Ltd.



Successful Implementation

The first machine retrofit was carried out in 2020, and since then the machine has been running smoothly, delivering all the key benefits to the customer. As a result, Alba Packs has decided to install seven new machines to meet their growing demand. All machines will be equipped with the SEW's solution that has proved so effective on the initial retrofit.

MOVIDRIVE® Technology: SEW's efficient inverter from MOVI-C® family



MOVI-C® is SEW's brand for a new generation of drive and automation technology. These inverters have been completely re-engineered to meet the demands of the next generation of automation tasks.

MOVI-C® is a modular automation portfolio that offers a high level of machine automation. It encompasses drive

technology, motion control technology, and visualization capabilities. The MOVI-C® portfolio includes a common engineering software called MOVISUIT®. This software is used for both the controller and the inverter, providing easy commissioning for applications ranging from simple to complex.

Within the MOVI-C® family, there are three groups of inverters:

1. MOVIDRIVE® Modular: It offers flexible and modular solutions for controlling multiple axes in automation systems.

2. MOVIDRIVE® System: It provides efficient and reliable control for individual axes in various automation tasks.

3. MOVIDRIVE® Technology: This group also focuses on single-axis applications but emphasizes advanced technological features.

These three inverter groups within the MOVI-C® family cater to different automation needs, allowing users to select the most suitable option based on their specific requirements.

MOVIDRIVE® Technology

The single axis inverter having power range from 0.55 to 315 kW with 200% overload capacity. Integrated standby mode and flux optimization increases efficiency.

Standby Mode: The standby mode is designed for times in which the operation is paused. Extremely fast switch (500ms) from standby mode to normal operating state enable consumption of only 3.6 watts reducing energy consumption even in short pauses without disturbing bus communication.

Flux Optimization: This function allows an asynchronous motor to be operated in control mode VFCPLUS with minimal losses, magnetic flux is managed based on torque setpoint resulting in motor runs with minimum current. In this way energy losses of the motor are significantly reduced in partial and overload conditions.

Flux optimization can reduce magnetization losses in the motor up to 70%, hence efficiency can be increased in various less dynamic applications like Fan, Pumps, escalators and conveyor systems with constant speed.

One inverter for all motors

The MOVI-C® inverter family offers exceptional design flexibility, capable of controlling SEW's entire range of motors. This

includes synchronous servo, asynchronous AC motors (with or without encoders), LSPM technology motors, explosion-proof motors, and linear motors. With such versatility, MOVI-C® inverters can seamlessly integrate and effectively control a wide variety of motor types for diverse applications.

Features at a glance:

- EtherCAT®/SBus^{PLUS} in the basic unit
- Option available as CiA402 profile device variant
- PROFINET, EtherNet/IP™, Modbus TCP, EtherCAT® or PROFIBUS DP/ DP-V1 available fieldbus variants
- STO PLe SIL 3 safety function integrated
- Multi-encoder input in the basic unit
- MOVILINK® DDI with single cable for power and data
- Integrated memory card to back up device data
- Start-up via plug in alphanumeric or fully graphic keypads or MOVKIT® software

The Benefits:

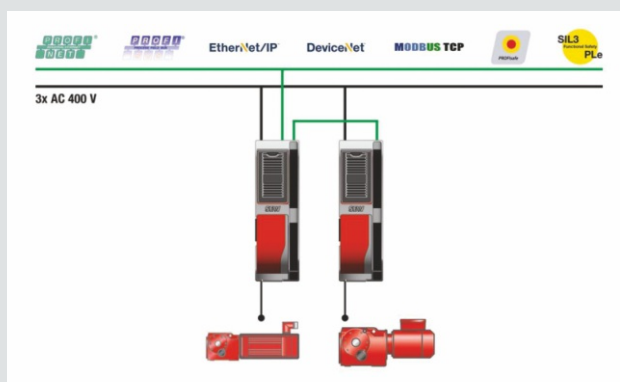
- **Efficient:** Increases efficiency by reducing magnetisation losses up to 70%
- **Time saving:** Preconfigured MOVKIT® software module enables quick & easy start up and saves commissioning time
- **Flexibility:** MOVILINK® DDI digital drive interface, optional expandable I/O and safety card provides more flexibility
- **Openness:** Connection to higher level control systems by supporting various fieldbus device protocols via MOVI-C® controller

Applications at a glance:

- General material handling
- Hoist & XY gantries
- Flying saw and Rotary knife
- Presses
- Winding
- Packaging machines

Technical Specifications

Nominal line voltage	AC 200-240 V, 3 phase AC 380-500 V, 3 phase	
Nominal power	0.55 -315 kW	
Nominal output current	2-588 A (400 V)	
Single-axis module	7-108 A (230 V)	
Max output frequency f_{max}	V/f : 599 Hz VFC ^{PLUS} : 250 Hz	CFC : 500 Hz ELSM® : 500 Hz



SEW showcases innovative solutions for a connected and climate-neutral industry at Hannover Messe 2023

Hannover Messe, the world's foremost industrial trade fair took place from 17th to 21st April 2023 at Hannover, Germany. The event focused on showcasing cutting-edge technologies and solutions for a connected and climate-neutral industry.

With the slogan "Drive for solution – we combine efficient components to create solutions," SEW showcased their capabilities as an innovative partner, placing a special emphasis on future energy sources for various drive and automation solutions.

Spanning an expansive 1500 square meter, SEW's stall offered the ideal platform to exhibit and discuss with customers our latest developments. Here are some key highlights:

Automated Guided Vehicles (AGVs) with hydrogen technology:

SEW unveiled their latest concept study, currently being developed at their R&D campus, which harnesses environmentally friendly hydrogen technology in AGVs. These AGVs possess the ability to automatically switch their energy supply between the battery and fuel cell while in operation. The fuel cell utilizes carbon-neutral green methanol as its fuel source, generating hydrogen through a subsequent combustion process. The combination of both the battery and hydrogen fuel cell ensures an environmentally friendly energy supply.

SEW employs their well-established and highly efficient contactless MOVITRANS® technology to transfer energy from these modules to the AGV's energy storage. To facilitate optimal energy storage, SEW utilizes robust double-layer capacitors that can be charged and discharged as needed.

The high energy output of the fuel cell makes it particularly suitable for applications requiring extended distances between loading and unloading points.

Coating-free gearmotors in ECO₂ design:

SEW introduced their ECO₂ design for gearmotors, enabling users to conserve valuable resources and reduce costs. By offering gear units in aluminum housings without any coating or painting, SEW caters to applications situated in enclosed spaces that are well protected from heat, cold, and moisture. In such working conditions, the energy-intensive coating and painting process can be completely eliminated, aided by aluminum's resistance to corrosion.

Coating-free components can be recycled later in an easier and more environmentally friendly manner is an additional advantage. On top of that, there is no need to recoat the components after repairs.

Higher energy-efficiency across entire SEW range

New motor designs from SEW that adhere to the highest energy efficiency regulations, regardless of whether they are asynchronous or synchronous motors. Within the realm of decentralized technology, both the MOVIMOT® performance and MOVIGEAR® performance products achieved the highest efficiency class (IE5). These advancements allow for the creation of even more economical systems.



Product	Efficiency class
DRU motor	IE4
DR2C motor	IE5
CM3C servomotors	IE5
MOVIMOT® performance	IE5
MOVIGEAR® performance	IE5

DriveRadar® IoT Suite for continuous condition monitoring:

SEW showcased the DriveRadar® IoT Suite, a solution that enhances efficiency through continuous condition monitoring of gear unit components. This innovative technology enables customers to predict the behaviour of these components, facilitating proactive planning of maintenance and repairs.

Overall, SEW's exhibition at Hannover Messe 2023 demonstrated their commitment to driving solutions in the industry, particularly in the areas of future energy sources, coating-free gearmotors, enhanced energy efficiency, and continuous condition monitoring.