# Drive India

SEW EURODRIVE

The SEW-EURODRIVE Customer Magazine

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The last couple of months have been a mixed picture for our customer industry segments, with signs of slowdown in industries like tyres, e-commerce and textile and others which continue to do well like F&B, foundry and construction. At SEW India, we are seeing a slowdown in our order book and sales numbers. The supply chain situation for electronics and chips sees a similar dichotomy with high density chips manufactured for the phone and computer market entering into recession while chips for automotive and industrial electronics continue to be in huge backlog.

Our customer story for this edition features an assembly automation solution provider from Hyderabad called Frugalhacks. Local, competent engineering resources working in close coordination with OE equipment suppliers delivering tailor made assembly, material handling and machine automation solutions speaks to the core of SEW's reputation and success in the industrial automation market, and this story is a typical example of this.

Our Product Story covers MOVIDRIVE®C, our next generation range of frequency inverters and controllers.

Our feature article covers our participation in Automation 2022 at the BEC in Mumbai and the products and solutions we showcased there.

I wish you happy reading!

**M J Abraham**
Managing Director, SEW-EURODRIVE India

# Frugalhacks implements 'Modular Automation Assembly Line' with SEW's technology

SEW-EURODRIVE recently supported Frugalhacks to implement 12 axis linear & rotary movement for robotic heavy duty gantry for semi-automatic brake group assembly line for a heavy mining truck. Frugalhacks is an automation solution provider based at Hyderabad, working with the Automotive industry especially for cost-effective, bespoke assembly automation. Frugalhacks, as the name suggests is known for providing frugal & innovative machine automation solutions with a focus on quality & a customer-centric approach.

## At the beginning

Frugalhacks came to SEW a year ago asking us to do geared motor selection for a rotary table application. However after realising the end to end technology support capability that SEW can provide locally, combined with the strength of SEW's own range of fully compatible products from field level devices all the way up to software libraries, they took the decision to work with SEW to be the technology provider for the entire project.

## Challenges

This was a completely bespoke project, which had to be designed on first principles from the ground up. A minor change in mechanical design changes the entire selection of drive parts, resulting in a series of iterative selections and calculations for an optimum, cost-effective configuration. SEW Hyderabad engineering team supported this process with precise calculations and selections through these successive iterations to finally deliver the end result.

## Project Details

This is a semi-automated assembly line where several applications like rotary table, gripper, tilter & gantry have to operate in synchronization to complete the assembly of the brake assembly.

The demand for higher productivity implies shorter cycle times. To achieve shorter cycle time, motors should have ability to deliver high dynamic torque and the controller should have the ability to calculate interpolated motion paths for multi-axis systems. Precise positioning was required as components being assembled inside the brakes have to be placed accurately in its designated slot, this is achieved with our DRL and CMP series highly dynamic motors and MOVI-PLC® multi-axis controller.

## Key Benefits of SEW's Solution

– Asynchronous Servo brake motor and MOVIDRIVE® inverter for rotary indexer axis ensures precise indexing

– The brake motor holds the application in-position during emergency stop/power failure's to reach faster cycle of operation when power resumes thus saves cycle time and increase productivity

– Sync. Servo brake motor and MOVIDRIVE® inverter was supplied for gripper, tilter and gantry axis to achieve absolute precision and accuracy in its operation

– All 12 axes were connected to SEW's DHR 41B controller to do positioning and sequence control

– Multi-motion application module enable quick and easy configuration of multiple axis with MOVI-PLC®

## Technical Specification

– Asynchronous Servo brake motor: Rotary indexing axis

– Synchronous Servo brake motor: Gripper axis

– High inertia Synchronous Servo brake motor: Gantry axis small

– High inertia Synchronous Servo brake motor: Gantry and tilter axis big

– Application Inverter: All application

– MOVI-PLC®: Motion controller

– Multimotion: Application module

"We have enjoyed very good business relations with the SEW team. We have always found your staff very co-operative, making all-out efforts to fulfill our requirements. The quality of your products & services (before & after sale) is always excellent. We wish our business relations flourish in future.

**Rajeshwar Reddy, CEO**
**Frugalhacks Pvt. Ltd.**

SEW team has an in-depth knowledge on design calculations, selection of drives & application programming during erecting & commission, The drive & gear box are the best product we have come across. We are sure that in the coming days Frugalhacks & SEW team will associate for future engagements.

**Denny Robert, CTO**
**Frugalhacks Pvt. Ltd.**

# SEW's flexible and intelligent MOVIDRIVE® modular inverter from MOVI-C® family

MOVI-C®

SEW has completely re-engineering inverter technology for the next generation automation task. The MOVIDRIVE® application inverter is fit for the future.

The MOVIDRIVE® modular is highly compact multi-axis system enable customer to save space and with its 250% overload capacity gives more flexibility in various applications.

## Features at a glance

– Single and double axis module
– Multi-encoder input in the basic unit
– Torque, speed and position control
– EtherCAT® / SBusPLUS in the basic unit
– Available as EtherCAT® CiA402 profile variant
– MOVILINK® DDI Digital drive interface. Single cable for power and data.

## The Benefits

– **Time saving:** Preconfigured MOVIKIT® software module enable quick & easy start up and saves commissioning time.
– **Cost reduction:** Excellent power management among connected axis. Use of regenerative power supply unit and energy saving functions during partial load saves operating cost.
– **Flexibility:** Optional MOVILINK® DDI Digital drive interface, expandable power and energy solution, expandable I/O provides more flexibility.
– **Openness:** Connection to higher level control systems by supporting various fieldbus device protocols.

## Functional Safety

Scalable functional safety, with the MOVISAFE® CS-A safety cards, SEW-EURODRIVE has made functional safety an integral part of all MOVI-C® application inverters. STO in PL e is already included in the MOVIDRIVE® basic unit.

All higher quality safety functions are achieved by plugging in an option card. This keeps project costs to a minimum by focusing only on the functions you actually need.

## Applications

Various multi-axis motion control applications like Gantry cranes, ASRS System, Palletizer, Pick and Place, FFS machines & all multi motor machines automation projects.

This inverter can connect up to 30 axis modules with one power module having maximum power up to 110 kW. It is highly flexible to control SEW's entire motor range including synchronous and asynchronous AC motors with/without encoder, asynchronous motor with LSPM technology with explosion-proof motors and linear motors also.


## Technical Specifications

Nominal line voltage V: 3 × AC 380-500
Rated output kW: 10-110
Nominal output current A Single-axis module: 2-180
Nominal output current A Double-axis module: 2-8

DID YOU KNOW?

## The Ferris Wheel is considered one of the greatest engineering wonders in the world!

The first Ferris Wheel was created by Pittsburgh, Pennsylvania engineer, George W. Ferris, in 1893. The wheel rotated on a 71 ton, 45.5 foot long axle comprising what was at that time the world's largest hollow forging and weighing 40,510 kg, together with two 16 foot diameter cast-iron spiders weighing 24,054 kg.

# SEW showcased advance technology in Automation at Automation Expo 2022

South East Asia's Biggest Automation Expo held from 16th to 19th August at BEC Mumbai returned after 2 years. More than 400 exhibitors showcased their latest technologies and products to over 3600 visitors.

## The SEW India Stall

SEW-EURODRIVE India has exhibited an enhanced range of AGVs for factory automation and the new generation of controllers for machine automation - MOVI-C®.

## MOVI-C® for Machine Automation

Higher accuracy and faster response are prime requirements of machine manufacturers across various industry segments. SEW meets and exceeds these requirements with its new generation portfolio of MOVI-C® inverters with centralised and decentralised configurations.

SEW with the MOVI-C® range provides end-to-end automation solutions by supplying software, hardware and installation and commissioning from a single source.

At the exhibition SEW has displayed 4 working models of common industry applications to demonstrate how accurately and precisely operations are executed.

– 6-axis gantry crane
– Rotary knife cutter
– Flying saw
– Anti-sway for stacker-crane

## Advantage of MOVI-C® generation products

– Single cable technology for motor & encoder
– Profile generation timing is faster up to 1 millisecond
– Faster communication using EtherCAT® protocol
– High resolution of encoder for precise accuracy and speed regulation
– Customised software modules for each specific application
– Wide range of controllers
– Inbuilt performance level E Safety with STO function
– Double axis modules are available

## Factory Automation

Automated Guided Vehicles (AGVs) under the MAXOLUTION® brand are designed and custom built by SEW India to precisely meet the specific customer requirement. MAXOLUTION® AGVs provide maximum flexibility, scalability and system safety with an ability to fully integrate into the customer's production and warehousing system as well as additional visualisation and fleet management capabilities.


Compactly designed SEW AGVs work with shorter safety scan fields enabling it to manoeuvre easily in narrow aisles. Virtual recreation of an entire shift cycle to confirm proof of concept is also possible.

**Tugger AGV (TG series)** and **Underride AGV (UR series)** from the various basic GV configurations that SEW offers were running at the SEW stall so the visitors could experience them in actual running condition.

## Tugger AGV features

– Best suited for transporting parts in a trolley
– Towing capacity up to 1000 kg
– Auto Hooking / Release and Manual Hooking / Release

## Under ride AGV features

– Modular design for compact factory layout
– Weighing capacity up to 1500 kg
– Commonly used for transport of pallets, frames, etc.

## Why one should choose SEW AGV

– **Navigations:** Inductive / Optical / Natural
– **Power supply:** Inductive/battery
– **Battery swapping option:** Manual/Automatic
– Fulfils logistics task autonomously and cooperatively
– Dynamic route planning in cooperation with neighbouring vehicles
– Provides clean room design as per ISO-6 requirements (e.g. Stainless steel surface, Abrasion – optimised wheels)
– Easy integration with Industry 4.0 and IoT
– High efficient, reliable and predictable material movement
– Precision control and higher positioning accuracy
– Increased safety and productivity
– Flexibility to accommodate changes in production requirement
– Reduction in labour and associated cost
– 24*7 operation