Drive India

SEW EURODRIVE

The SEW-EURODRIVE Customer Magazine

Dear Reader,

I have taken over the reins from Abraham with effect from Jan. 23 with a promise of continuity. I would strive to conserve and nurture the value proposition we have been delivering to you, our esteemed customers over the years.

While our sales growth remains strong because of backlog orders, incoming orders seems to indicate a slowdown though it is still too early to tell.

We have seen no improvement in the delivery performance of our electronic products due to the continuing dire global supply chain situation for industrial microchips.

Retrofit of old and sometimes phased-out products is one of the array of value-added services we provide to our End User customers. Our customer story for this edition features a retrofit project carried out on an EOT crane at SJVN's Nathpa-Jhakri hydroelectric power station where the originally installed 25 year old SEW units had become obsolete. The retrofit with upgraded technology delivered significant additional benefits to the customer.

Our product story features MOVIDRIVE® System inverter, which is a member of the MOVI-C® family, from our next generation automation portfolio.

In the feature article, Abraham my predecessor and mentor shares his thoughts on the journey he has had with SEW over the last 18 years.

I wish you happy reading.

S. Vasudevan
Managing Director, SEW-EURODRIVE India

Upgradation of brake motors in SJVN Ltd. EOT cranes - lifeline of the power plant.

SJVN Ltd. incorporated in 1988 as a joint venture between Himachal Pradesh and the Central Government is a Public Sector company involved in hydroelectric power generation and transmission. SJVN's Nathpa-Jhakri Hydroelectric Power Station with a capacity of 1500 MW is one of the country's largest hydropower plants and electricity supplier in 9 states of Northern India.

The major operational portion of the plant is underground and all movement of any material here is by using Electric Overhead Traveling (EOT) cranes. These cranes were installed 25 years ago by the Norwegian equipment supplier Munck Cranes with SEW brake gear-motors installed. Since no material movement or maintenance work can take place without these cranes, they are critical to plant functioning.

SEW brake gear-motors in these EOT cranes have performed without issues for 25 years thanks to the sound technical and maintenance team of SJVN and SEW's proactive support. The brake especially is a safety critical component that wears out and requires periodic maintenance and replacement at end of life. The originally installed units did not incorporate a condition monitoring system for the brake, which meant periodic manual inspection under difficult conditions.

Task of upgradation

The original motors supplied by SEW are IE2 efficiency and after more than 25 years have now been phased out. The SEW team had several discussions with the SJVN engineering and maintenance team regarding many advantages of a retrofit upgrade. Benefits of the new BE brake with the latest DUE brake diagnostic unit using the eddy current principal as well as the enhanced energy efficiency of the IE3 class DRN motors were explained. Finally this combination was chosen as the perfect replacement solution of the old DV series IE2 motors currently in use.

Key benefits

- IE3 efficiency class saves energy
- Reliable brake system
- Brake monitoring system reduces maintenance inspections and down time
- Cost saving and faster availability of spares

Execution challenges

- Integration of the new brake gear-motor with the existing control system
- Tandem operation mode where all 3 movements (CT, LT and Hoist) of both cranes have to be synchronized perfectly
- Decoupling of 25 year old units because of rust and limited space
- Safety aspect as cranes are at a height of 20 meter
- Working under low oxygen levels due to underground conditions

Job well executed

The material delivery was planned well and done on schedule. SEW's service team along with the experienced SJVN team spent 3 weeks working in both shifts to commission 2 cranes and replace 16 brake gearmotors. The upgradation is running successfully.

Technical Specifications

Sr. No.	Application	Unit Type	Qty. per Crane	Motor Power (kW)
1	250T / 50T LT	FA97/G DRN112M4/BE11HR/TF/V/DUE	4	4.00
2	250T / 50T CT	FA107/G DRN112M4/BE11HR/TF/V/DUE	2	4.00
3	50T HT	DRN225M4/BE62HR/FF/TF/V/DUE	1	45.00
4	10T CT	RF37 DRN71M4/BE05HR/TF/Z	1	0.37

"We wholeheartedly would like to extend our gratitude and appreciation towards SEW for successfully completing the work. The professionalism and sincerity exhibited by the SEW team is commendable and deserves appreciation. We are fortunate to have business associates like you.

Mr. Rajeev Kapoor - Addl. General Manager

Mr. D P Sharma - Manager

SJVN Ltd. Nathpa Jhakri (HP)

SEW's optimised MOVIDRIVE® system inverter from MOVI-C® family

MOVI-C®

With its brand MOVI-C®, SEW has launched a new generation of drive and automation technology. These inverters are completely re-engineered for the next generation of automation tasks.

MOVI-C® is the modular automation portfolio that enables the highest level of machine automation. It comprises drive technology, motion control technology and visualisation. A common engineering software MOVISUIT® for controller and inverter provides easy commissioning for simple to complex applications.

The 3 Inverter groups from the MOVI-C® family are

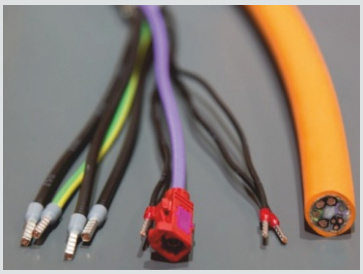
- MOVIDRIVE® Modular – Multi axis
- MOVIDRIVE® System – Single axis
- MOVIDRIVE® Technology – Single axis

In cases where there is a large load axis, this can be handled independently by a MOVIDRIVE® system inverter on the same network of a MOVIDRIVE® modular handling the remaining axes. This leads to optimised overall power requirement for the inverters leading to cost reduction.

The single axis compact inverter design is suitable for motors up to 315 kW power with 200% overload capacity covering various applications. It is suitable for applications that need longer motor cable length. The MOVIDRIVE® system is intended for operation with a MOVI-C® controller. Compact inverter design saves cabinet space.

MOVILINK® DDI -
Unique single cable technology

MOVILINK® DDI (Digital Data Interface) enables a single cable to be used for motor power supply along with transmission of diagnostic data of the drive, encoder data and brake control which saves 50% space and use of multiple cables.

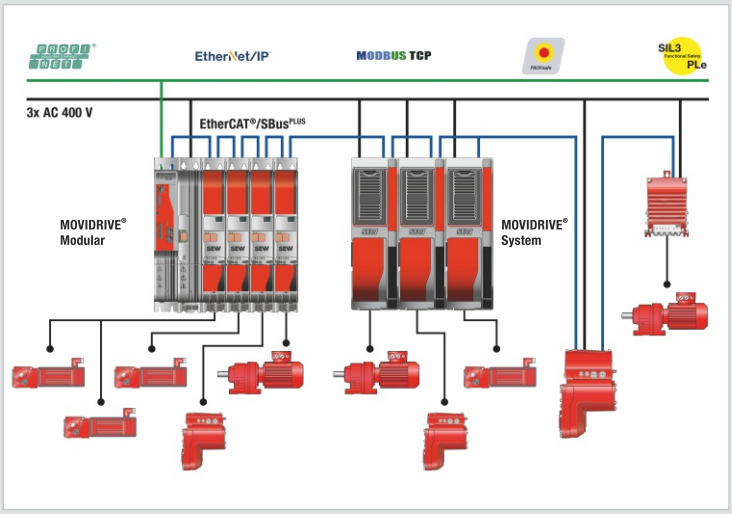


One inverter for all motors

The design flexibility built into the MOVI-C® inverter family enables it to control SEW's entire motor range including synchronous servo, asynchronous AC motors with or without encoders, asynchronous motor with LSPM technology, explosion-proof motors and linear motors.

Features at a glance:

– Single axis module with 4-quadrant capability
– Multi-encoder input in the basic unit
– EtherCAT®/SBusPLUS in the basic unit
– Option available as EtherCAT® CiA402 profile device variant
– STO PLe SIL 3 safety function integrated
– MOVILINK® DDI with single cable for power and data



The benefits:

– **Cost reduction:** Perfect addition to the multi-axis system for high motor power ratings
– **Space saving:** Very compact in size and bookshelf design reduces space require-ments in the control cabinet
– **Time saving**: Preconfigured MOVIKIT® 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

Various motion control applications like Crane, Hoist, Rotary knife, Flying saw, Skillet, ASRS System, Stacker-reclaimer automation etc.

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 Single-axis module	2-588 A (400 V) 7-108 A (230 V)
Max output frequency f_{max}	U/f : 599 Hz for simple application with asynch motors VFCPLUS : 250 Hz for precise control of synch motors CFC : 500 Hz for synch and asynch motors ELSM® : 500 Hz for synch motor without encoder

Reflections on a rewarding journey

On the eve of his retirement, Drive India caught up with M J Abraham, MD SEW India, for 17 years and asked him to share some highlights from a long and illustrious career.

Firstly, could you give a brief background about yourself and your stint at SEW?

I'm a Mechanical Engineer, originally from Kerala. I've only worked in two companies, 17 years with SKF Bearings, and now running my 18th year with SEW EURODRIVE where I joined as head of the Indian operations.

I joined SKF through campus recruitment at their Pune manufacturing plant as a management trainee and held various shop-floor roles. After 4 years I asked for a change and was transferred to automotive OE sales in Chennai which was a totally different environment from production. I came back to Pune at the turn of the millennium in an all-India Business Development role and took over as head of Automotive OE Sales two years later.

I joined as MD of SEW-EURODRIVE India in 2005 when SEW India's total sales was about 30 crores and we had one Assembly plant in Vadodara; we have just inaugurated our fourth DTC (Drive Technology Center) in the NCR last month and we closed last year at over 570 crores in sales.

How would you describe your leadership style?

I would describe myself as a reluctant leader, initially very reluctant when I first started having people report to me after almost 12 years into my career, as I am rather introverted. Over time I learned to be more comfortable with what being a leader entails and to appreciate the meaning such a role offers in terms of both creating and participating in something which is bigger than oneself.

My leadership is based on the foundations of curiosity, respect and gratitude. I try to get out of the way as soon as possible of what the team is capable of doing by themselves and celebrate their successes with them, but make it a point to be present and as assertive as required when critical issues like adherence to the companies' values, alignment to the brand promise or investing in the right future direction is concerned.

I set great store by our values of Empowerment, Openness, Teamwork and High Ethics and have done my best to nurture a non-hierarchical, participative, decision making process and working culture, with a very strong focus on continuous training and skill enhancement with equal importance given to both hard and soft skills.

I am a strong believer in documented policies to remove subjectivity where feasible from HR decisions and in strong processes in both operations and sales with the intent to give a clear framework for empowered decision making rather than to exert control.

In your opinion, what sets SEW apart from other engineering companies?

Well for one thing we clearly identify ourselves unambiguously as an "Engineering Company". Both globally and in India the engineering aspect is what is given top priority. Technically we are at the global cutting edge of what we do.

Specifically in the Indian context we have nurtured a working culture where our frontline technical sales and technical support people have both the hard skills and the confidence to look outward to the customer to deliver solutions rather than inwards and upwards at their bosses for directions.

We are very careful about the commitments we make and once made rarely fail on our commitments. Again, from the perspective of the Indian context, we tend to be rather "German" in our approach to contracts and commercials and as a result this often gets us labelled as rigid and inflexible. However our learning has been that this approach is the most effective in nurturing long term mutually beneficial business relationships.

Thinking about the many customer visits you have made over the years, what are some big themes you have seen?

The best part of my job has been visiting our diverse customers across India and talking to them about the complexities of their business, their aspirations and challenges. I set myself the target of visiting a 100 customers a year at their location and most years I manage to exceed this target.

Equipment manufacturers (OE's) want engineering support for design, fast and reliable delivery and customer satisfaction. End User customers want energy-efficient, high-output performance, minimum maintenance and downtime costs and support through the entire life cycle of their equipment.

They say history repeats itself. Is this true of the Indian manufacturing industry? Are there some predictable cycles and patterns that you have seen?

We are in the capital good industry in India which is not for the faint hearted. The capital goods business cycles between boom and bust. To handle these cycles two things are critical. A strong value proposition or brand promise that stays constant through these ups and downs. And a strong financial position to back up this philosophy. Thankfully we have both.

Post Covid we have had two years of very strong growth. Based on what I have seen before, that means a slowdown coming up. I would be very happy to be wrong.

Ending on a more personal note, what will you miss the most about your job?

Visiting and talking to customers and being part of a high performance team.