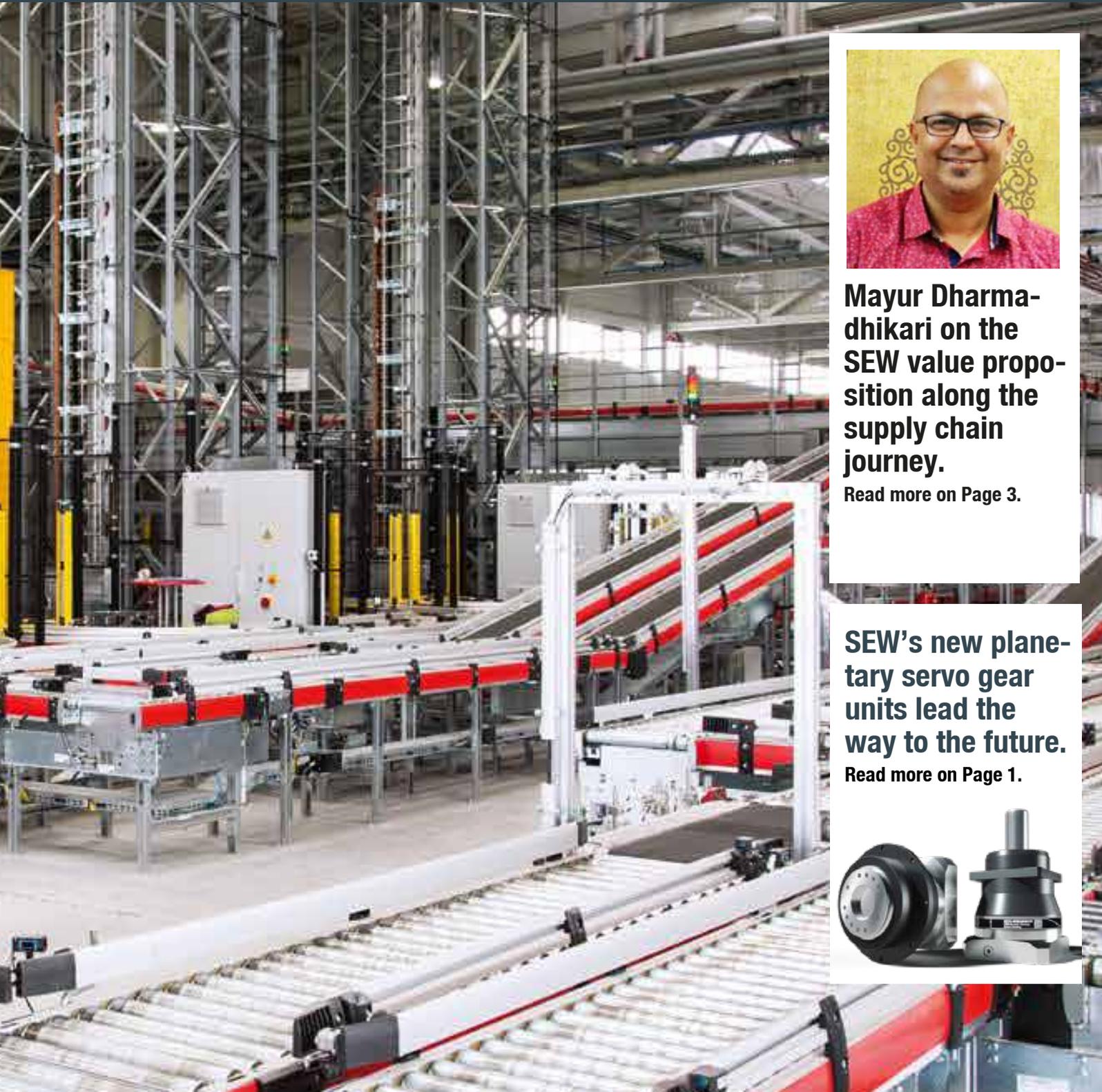


SEW
EURODRIVE

Drive India

The SEW-EURODRIVE Customer Magazine



Mayur Dharmadhikari on the SEW value proposition along the supply chain journey.

Read more on Page 3.

SEW's new planetary servo gear units lead the way to the future.

Read more on Page 1.



Dear Reader

With a record order book in February, topped by the order book in March, at SEW India we definitely look like we're fully back on track post pandemic. So much so that our chief concern right now is securing our supplies. We face a hugely overloaded, global, freight-movement situation, as well as a locally overwhelmed electric motor industry for our DIB series of motors. Our supply chain guys have done a great job to get us through the last quarter with minimal disruption to customers, and going forward we see the situation easing, thanks to proactive steps that we have taken.

For our customer story for this issue, we look at a machine automation project we have done for Hind Hydraulics and Engineers located in Faridabad. The customer's special purpose machines include belt curing machines supplied to belt manufacturers. As a result of automation improvements carried out with SEW, the equipment supplied by Hind Hydraulics now eliminates human intervention apart from the initial selection of belt type on the HMI, and delivers an optimised output of precisely cured belts. One of SEW's key strengths, with our countrywide network of application engineers and facilities, is our ability to deliver this sort of on-site, hands-on partnership with our customers to deliver actual solutions with our technology and products.

The product story looks at our new Px.G range of planetary servo gear units,

which now come in 3 series (P5, P6 and P7) to fit the precise industry need. With the industry's increasing need for compactness, precision, dynamic response and maintenance free reliability, these units are set to be the workhorses of tomorrow's Industrie 4.0 motion-control landscape.

I mentioned the great work done by our Supply Chain team through this difficult period of surging demand and overwhelmed resources. Our feature story is an interview with Mayur Dharmadhikari, who heads Demand Chain, HR and IT for SEW India, as he talks about the challenges he handles on a day-to-day basis to keep out best-in-class delivery value proposition ticking over and on track.

I wish you happy reading!



M J Abraham
Managing Director, SEW-EURODRIVE India

New SEW application raises the bar in heat curing for belts.



In a partnership that leads the way for multiple industries, SEW-EURODRIVE recently joined hands with **Hind Hydraulics & Engineers** to install the dynamic, reliable, and user-friendly Heat Curing Machine (HCM) for belts at a customer site. The application offers Hind Hydraulics key benefits in terms of accuracy, savings in time, and zero manual intervention.

Hind Hydraulics & Engineers is a leader in the manufacture, supply and export of hydraulic presses, mechanical presses, servo presses, press tools and dies, and automation. The company also has significant engineering experience in rubber/synthetic curing lines.

The application.

The Hind Hydraulics Heat Curing Machine has three axes: two for the linear travel (trolley drive), and one for the belt drive. The trolley drive stretches the belts to the required distance, while the belt drive rotates the belts for curing at different sections.

In a conventional system, the curing press is required to run with manual inputs for different belt diameters and curing times. This involves extensive human involvement, and it is difficult to maintain the optimum quality of curing.

A challenge, a solution.

Hind Hydraulics & Engineers approached SEW with the basic challenge of maintaining accuracy of position and elongation of belts, to ensure correct tension in the belt, along with a precise braking system to keep the tension constant over the specified time period.

Based on their experience in various such applications, SEW engineers made a basic calculation of all drive systems and introduced SEW servo motors for better accuracy and dependability. This was the first project for SEW where two servo systems were synchronized in operation after the previous process is completed to the specified level. The drum rotation needs to start once the belts come to the specific tension during stretching, and the pull needs to be maintained for the specific time period for best curing quality.

What the machine comprises.

There are two drive systems in the machine. The

first is a set of thirty belts, which continuously roll on two drums, stretching the belts to a specific tension. This elongation is achieved by the SEW servo gearmotors, ensuring accuracy in expanse, and maintaining the required stress level in the material during the curing process.

The second is a set of SEW servo drive systems that help the drum to rotate at the specified speed and intervals. It is the accuracy of the stretching and rotation that ensures the precise chemical properties of the rubber belts. The two servo drive systems with the absolute encoder makes the system robust and automatic, doing away with the need for human intervention while making the switch in the stretching and drum rotating process.

Technical specifications.

Servo gear motor.

- KAF77 CMPZ80M/BY/PK/AK1H/SB1.
- R67 CMP71L/PK/AK1H/SM1.

Inverter/options/accessories.

- MDX61B0055-5A3-4-0T/L/DEH11B/DFE32B.
- MDX61B0030-5A3-4-0T/L/DEH11B/DFE32B.
- Movidrive61B with extended positioning via Bus (ProFINET interface).
- Prefabricated encoder and power cables for easy installation & maintenance.

Solution for HCM from customer's end.

- Siemens PLC & Control Panel to accommodate switchgears & Movidrive.

The benefits.

- Zero manual involvement.
- Zero error probability, as the machine works precisely per the fed-in inputs for the complete cycle.
- In case of power breakdowns, the absolute encoder keeps the application status in memory, and starts the machine from the last step automatically, saving time and eliminating chances of over-curing a particular stretch.

Key Features.

- Linear Travel Distance: 2.5mtrs.
- Linear travel speed: 40mm/sec.
- Running mode of M/c: Extended Positioning via BUS.

Looking forward.

The Hind Make Heat Curing Machine with SEW is operational at **Hind Hydraulics & Engineers**, and is serving the end-user well. They have expressed interest in more such machines with SEW drive systems.

"Our HIND MAKE Heat Curing Machines bring an innovative revolution in Heat Curing application by introducing a newly developed SEW Solution for optimization of quality of curing, time and productivity, and is working satisfactorily. Therefore, we strongly recommend HIND MAKE Heat Curing Machine with SEW-EURODRIVE for belt applications."

-- Mr. Sucha Singh & Mr. Sukhdev Singh,
Directors, M/s Hind Hydraulics & Engineers

SEW's new technology gears applications for the future.

The new PxG® planetary servo gear units from SEW-EURODRIVE bridge the gap between servomotor and application as per customer requirements, offering tangible and next-generation value-add to every user. Beyond just supplying innovative technologies, SEW also provides intelligent services and a futuristic partnership for the client's machine automation needs. PxG® offers an all-in-one package for the entire drive train, thus delivering added value customized to different requirements.

PxG® PLANETARY SERVO GEAR UNITS



Wide range for every need.

These gear units from SEW come in three product lines to cater to varied industry needs.

P5.G series: The scalable all-rounder.

- Optimized for dynamic movements.
- Premium seal for low wear.
- High gearing quality for extreme precision over entire lifecycle.

P6.G series: The fast endurance runner.

- Enhanced efficiency for high speeds.
- Innovative lubricants from SEW & sealing systems for a running time of 30,000 h.
- Friction-optimized drive with enhanced thermal behaviour.

P7.G series: The precise power pack.

- Highest precision even in standard design (≤ 1 arcmin).
- Increased overload capacity in case of emergency-off operation.
- Short, compact operation with high torsional rigidity.

The best is also the fastest.

The PxG® planetary servo gear units have been designed as a modular product concept, making them the flexible gear unit solution for almost any application.

- Wide-ranging modular system that adapts optimally to client applications.
- Geometrical compatibility with market standard.
- Custom configuration tailor-made for client requirements of service life, precision & performance.
- High on torque, small on installation space requirement.
- Long service life for all product elements: bearings, gearing, lubricants & sealing elements.

Innovation par excellence.

SEW's new PxG® planetary servo gear units combine three things: technological superiority, a high power density, and a long service life. This combination makes the customer fully ready for the demands of Industry 4.0.

- 100% inspection of all installed gear units.
- Digital twin (digital depiction of actual product) accompanies the product through its lifecycle.
- Futuristic simulation tools precisely determine service life during planning phase.

- High power density over long service life.
- Consistent operating characteristics (rotational clearance & angular synchronism) over whole lifecycle, even under extremely high loads.
- Exclusive machine elements: Eg: SEW GearOil Poly E1 series & the Premium Sine Seal sealing system.

Applications for P5 to P7.

- Robotics, Automation & Handling Technology.
- Machine tools & manufacturing systems.
- Woodworking machines.
- Food processing & packaging machines.
- Printing & paper machines.
- Textile machinery.
- Tire, rubber & plastic machines.

What makes SEW a strong global partner.

Beyond the advantages of a just single product, SEW-EURODRIVE has a lot to offer customers who seek a global drive engineering partner. The following is the added value in SEW's bouquet:

- Solutions for the entire world of drive technology and automation.
- Extensive product portfolio.
- An innovation partner for the future.
- Proficient on-site consulting worldwide, and strong support when utilizing the modular system.
- Consistently high level of innovation for products and services, including with input from exclusive industry partners.

| Planetary servo gear units | P5.G.. | P6.G.. | P7.G.. |
|----------------------------|---|--------------------------------------|---------------------------------|
| Sizes | | 21, 31, 32, 41, 42, 43*, 51, 52, 53* | |
| Gear ratio | 1-stage | 3-10 | |
| | 2-stage | 12-100 | |
| | 3-stage | On request | |
| Acceleration torque | 66-840 Nm | 40-480 Nm | 80-990 Nm |
| Rotational clearance | 3-4 arcmin | | 1 arcmin |
| Service life | 20 000 h (DC 60%) | 30 000 h (DC 100%) | 20 000 h (DC 60%) |
| Output variants | - Smooth solid shaft - Solid shaft with key - Splined solid shaft (DIN 5480) - Flange block shaft without index bore - Flange block shaft with index bore | | Flange block without index bore |
| Lubrication | Lubrication for life: - SEW GearOil Poly E1, also in H1 (food grade) - SEW Grease HL2 E1, also in H1 (food grade) | | |
| Seal | Premium Sine Seal or labyrinth seal (in case of grease lubrication) | | |
| | *P7 only | | |



Keeping to the SEW value proposition, all the way from demand to delivery.

DriveIndia has an illuminating chat with Mr. Mayur Dharmadhikari, Head of Demand Chain, IT & HR at SEW India, bringing out the nuances of the Supply Chain journey, and showing how investing in it helps keep the competitive edge intact.

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

Last year I completed the silver jubilee of my industry experience. Most of my career has been in a job profile of customer order handling and supply chain domain. I worked for about a decade at SKF Bearings and then in SEW since March 2006. My job profile at SEW is Head of Demand Chain, IT & HR, making the profile diversified.

Could you explain to our readers what you mean by Supply Chain or Demand Chain Management?

Demand Chain comprises all functions in the entire value chain from customer order receipt to delivery to his premises as promised in terms of price, delivery, documents, etc. (popularly known as OTD). It only excludes the actual assembly process of picking to painting. The chain starts after the demand is entered by sales in the system and ends after delivery; hence the words 'Demand Chain'. It includes various sub-functions like Order fulfillment, Logistics (raw material stock planning—MRP), Warehouse management (raw materials and finished goods, both) and Purchase. It is a combination of two functions: Customer Order Handling/Processing and Supply Chain.

How does Demand Chain contribute to SEW's value proposition?

Short and assured delivery time is one of SEW's key value propositions (VP), and it continues to give us a competitive edge. Demand Chain vertical plays a major role in ensuring compliance to this VP by processing customer orders quickly and promising a delivery date as per above VP based on the stock profile of the variety of different parts required to assemble various product configurations.

What are the various broad product categories when it comes to delivery? How do you define each and what is the expected delivery for each one?

Locally assembled products can either have a short or long delivery time based on local assembly range, stock profile maintained based on past consumption trend, and sales feedback. For example, for certain range of Gear Motors and Inverters (GM & I) we maintain stock, and for others we don't; hence components required for assembly are ordered after we receive customer order and delivery is long—normally 4-5 weeks if missing parts are ordered by air shipment, or 3 months if by sea.

We commit 7-days delivery for short delivery range products, i.e., units packed in seven calendar days from order entry date in SAP. Actually we have brought down the delivery time gradually from 32 days to 7 days over the last decade. This short delivery range is roughly 60% of the total quantity of GM & I assembled.

We often hear you talk about "delivery reliability" and "availability". What exactly do you mean by this?

Delivery Reliability is what we commit to customers, and Availability is what they want.

We commit 7-days delivery for short delivery range products which we call as Delivery Reliability, i.e., units packed in seven days from order entry date in SAP. For the same range we also measure whether we pack units as per delivery date required by the customer irrespective of the delivery period, which may be either equal to, less or greater than seven days. This is called Availability.

How do you balance between stock levels and delivery reliability?

We always have to walk a tightrope to strike a right balance between stock levels and delivery reliability. This is especially important in a company like ours, which is into assembly and not manufacturing, and material cost as a percentage of sales is high with respect to a manufacturing industry. Our sourcing cycle is around three months, but we still do not lock working capital in high stock levels to keep our delivery promise, as that affects profitability. We ensure a right balance between on-order and on-hand inventory at any given point of time to keep this in control. This is ensured by changing safety stocks regularly, on-time conversion of purchase requisitions to order, and regular discussions with sales wherever required. MRP tools available in SAP, Training from MRP planners in Germany and our experienced staff help us in achieving this.

Looking back over the last few years, what improvements have you been able to make when it comes to supply chain management?

Delivery promises need a buy-in from vendors (internal and external), as the supply chain is integrated. This knowledge transfer is ensured through regular interactions with vendors, as well as through a structured vendor rating with delivery as one of the key parameters.

We have put in place several other processes, like locally signed contracts with import/freight forwarders, which includes their performance rating, regular warehouse audits to improve part/unit picking reliability, projects in the warehouse to improve storage quality and productivity.

We have also introduced packing inspection process before packing, and storing finished units to ensure that errors are found in-house to avoid customer complaints. All key process control parameters are linked to employee performance targets.

Customers enjoy peace of mind after they place their orders with us, as they are sure the delivery will not fail, and they order when they actually require the material, which avoids inventory carrying at their end.

SEW is a technology leader in plant and warehouse automation. How does this help in your own plants?

We have done some projects for material movement through AGVs at our Chennai plant to reduce assembler fatigue, improve productivity and ease in



handling. But this is not explored in detail till now in other areas, like material movement in warehouse from incoming bay to storage racks. Would certainly like to see some of those projects getting implemented, and my team in Chennai is already in discussion with our MMHS team for that. Let us see. It would be good to showcase our strength in this area when customers visit our plants.

Do you have any advice for local manufacturing companies after dealing with them as customers and vendors?

Local manufacturing companies should understand that the supply chain is integrated and suppliers should be aware and should align their deliverables to their customer's value proposition. Key customer satisfaction parameters should be linked to employee compensation to keep the process self-driven. They should invest in capacity upgradation ahead of time, which is important to handle volatile business cycles. Customer intimacy should be one of their strategic themes, to understand deeply how customers make buying decisions. Many of them do not give importance to on-time delivery, as many of their major customers do not measure their delivery performance the way we do in the case of our vendors.

Tell us about a couple of examples where a customer really benefitted from your team's expertise?

It is difficult to pick specific examples, as there are many instances where we have ensured the shortest possible delivery as per customer expectations to meet their project timelines. We have delivered units even in a day, in many cases, to meet customer urgencies and customers have appreciated that.

"Local manufacturing companies should understand that supply chain is integrated, and ensure that suppliers are aligned with their own value proposition to customers. Key customer satisfaction parameters should be linked to employee compensation to keep the process self-driven. They should invest in capacity upgradation ahead of time, which is important to handle volatile business cycles."