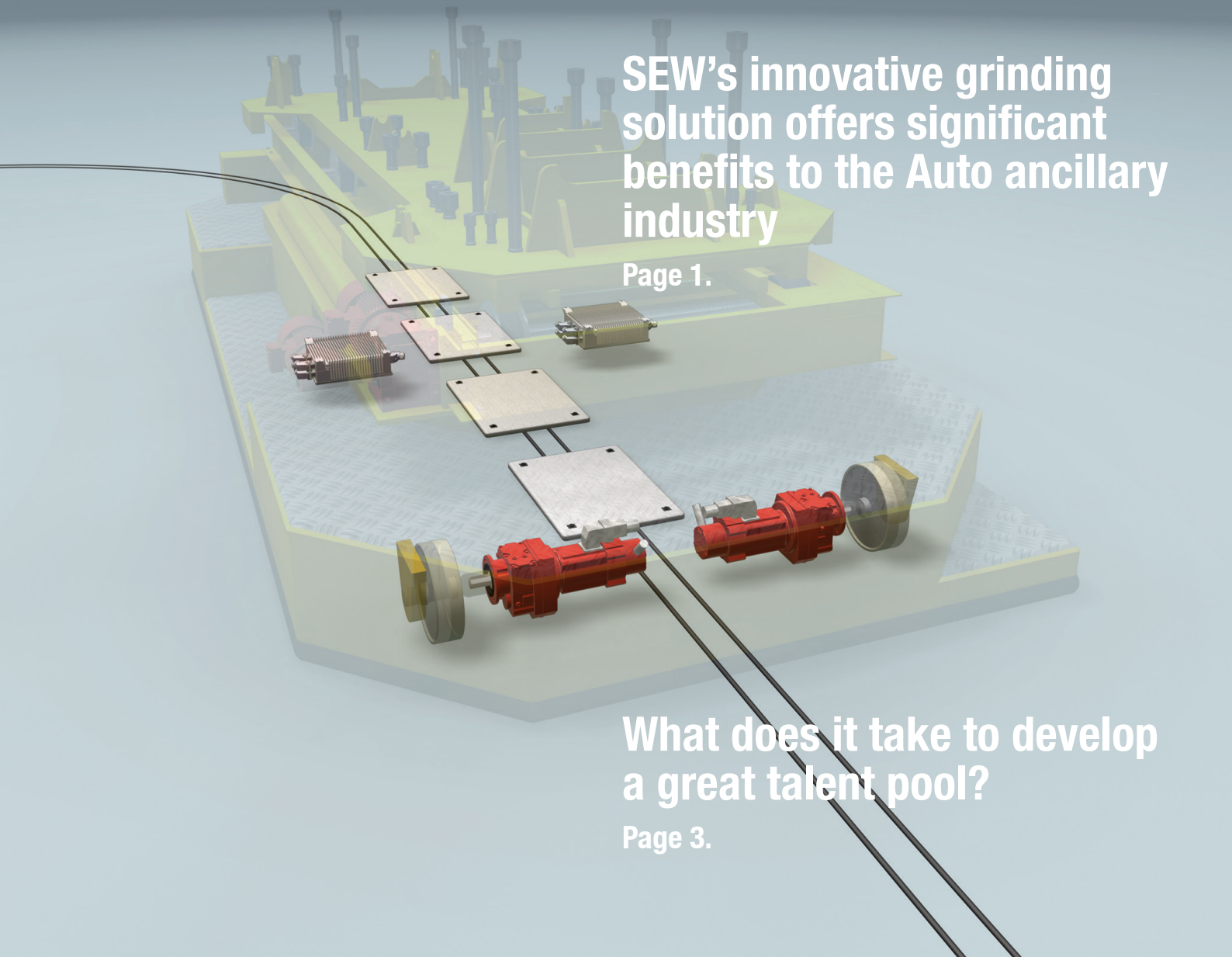
SEW EURODRIVE

Drive India

The SEW-EURODRIVE Customer Magazine



SEW's innovative grinding solution offers significant benefits to the Auto ancillary industry

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What does it take to develop a great talent pool?

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Dear Reader

The last couple of months have been eventful to say the least. Britain has voted to leave the EU, Rajan has chosen to leave the RBI, there has been an attempted coup in Turkey and violent acts in both Europe and the US. We will have to wait and watch to see how all these events play out for us in India, which seems for the moment a haven of stability in comparison. Our latest GDP figures confirm India as the fastest growing major economy in the world, which is good news. Conversely there is no shortage of companies in our industrial sector who find this 'good news' difficult to reconcile with their own situation on the ground. Whatever your point of view on this, all sources of data seem to be in agreement that private sector investment (especially in manufacturing) has still not revived, and only government investment in areas like power, railways, roads and defence has started recovering. Hopefully the actions initiated by the RBI to clean up public sector bank balance sheets will continue, as commonsense would tell us that a new capex cycle can start only when the system fully digests the consequences of the previous one.

Moving on to our business, one of the things that we feel sets SEW apart is the engineering competence we have built in all our sales branches, and our willingness to put in the effort at a customer location to spec and deliver the precise drive solution, especially in retrofit cases. This issue of Drive India has two stories that cover different aspects of this.

The cover story details a project we did with ABC bearings at their Baruch plant to upgrade an old DC motor solution on their centerless grinding machines. And in our interview on the last page we talk to S Vasudevan, our Technical Head, about the challenges of keeping SEW's competence in place in 26 cities across the country, given the attrition rate that all companies in India have to deal with.

I wish you happy reading!

M J Abraham
Managing Director
SEW-EURODRIVE India

A retrofit solution for a centre-less grinding machine.

SEW-EURODRIVE recently partnered with ABC Bearings Limited, an Original Equipment Manufacturer (OEM) supplier to the automotive industry. The new SEW solution that was implemented offers multiple benefits like zero-maintenance, smooth operations, greater reliability and significantly reduced noise.

ABC Bearings provides taper roller bearings, cylindrical roller bearings, slewing bearings and grease to customers in the Automotive industry in India and abroad.

About the application

The application is a centre-less grinding machine that is usually preferred when several small components need to be processed quickly. The work piece is wedged between two grinding wheels that rotate in the same direction at different speeds. One is the grinding wheel while the other is stationary. The work piece (in this case the bearing) is ground by a rubber bound abrasive around the grinding wheel.

Why the existing system had to be upgraded.

In the existing system, the grinding wheel was driven by a customized gearbox and DC motor, and their associated electronic controls. ABC bearings were facing several problems with this:

- DC technology is obsolete; availability of spares and maintenance of old gearbox were proving difficult.
- Both gearbox and motor had repeated issues like breakage of gears, oil leakage and breakdown of DC motor, all of which resulted in poor machine uptime, lowered efficiency, productivity and quality of output (ie., grinding).

Overcoming challenges.

Since the existing system had a customized gearbox, replacing it with a standard geared motor was a dimensional challenge. Further, the high-mass moment of inertia of the drum and the grinding force made a synchronous Servo motor difficult to fit in.

To overcome these issues, an asynchronous Servo geared motor was chosen, which offers the same kind of speed variation and constant torque as the earlier DC system. Additionally, it comes with the reliability of a Servo system along with zero maintenance.

Delivering the solution.

SEW's team of engineers worked closely with the maintenance team at ABC Bearings, discussing and understanding torque speed curves and other technical parameters. The retrofit solution was successfully executed and it satisfied all technical requirements without sacrificing anything the previous system provided.

Servo technical specification for each machine:

Asynchronous Servo Geared Motor	• **K77 DRL100L4/TF/ES7S** • Peak torque with 1160 Nm • Speed 314 rpm • Rated current = 16A
Gearbox	SEW K77 – Gear Ratio = 9.56
Inverter	Movidrive-B **MDX61B0075-5A3-4-00** • Rated Power = 7.5W • Rated output current = 16A • Internal current limitation= 150% for very short time

A solution with several benefits.

- Zero maintenance
- High reliability
- Smooth operations
- High energy saving
- Simple mechanism
- Low noise

Given the successful installation and running of the first machine, the same system has been implemented for three more machines, each of which is also running satisfactorily.

> "After installation of the SEW-make geared motor at the regulating wheel, we have achieved quality improvements and almost zero-maintenance, besides noise-free operation. We are satisfied after the installation; that's why we have installed several such geared motors in our different applications."
>
> - **Nikhil Sheth**, Manager Plant Maintenance & Utility (Mech.), ABC Bearings Ltd.
> - **Yogesh Panchal**, Manager Elect. Maintenance (Mfg.), ABC Bearings Ltd.

To know more about ABC Bearings, please visit their website, www.abcbearings.com

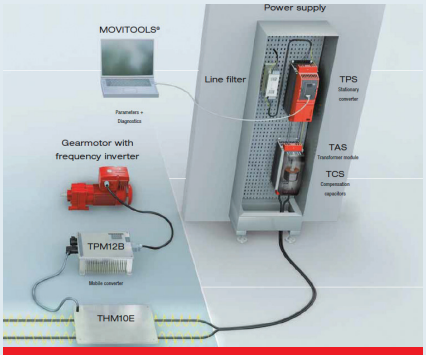
MOVITRANS® from SEW: A technological breakthrough in energy transfer.

In power supply systems for mobile applications, contactless energy transfer has several significant advantages over conventional systems. Industry operators make this changeover because high system availability and harsh environmental conditions play an important role. SEW-EURODRIVE offers the MOVITRANS® contactless supply system for RGV, EMS & AGV, etc., which works on the principle of inductive energy transfer. Here, electrical energy is transferred from a fixed conductor to one or more mobile consumers without contact, so that the electromagnetic connection is made through an air gap. Not subject to wear and tear, this system is virtually maintenance-free, emission-free and insensitive to outside influences. It poses tangible advantages over conventional methods like contact rails or cable handling systems.

Where is it useful?

MOVITRANS® is apt for power supply in any mobile application, for instance when:

- The mobile equipment has to cover long distances.
- Energy has to be transmitted at high speeds.
- The energy transfer has to be maintenance-free.
- Environmental contaminants are not permitted in sensitive areas, or the equipment is used in wet and moist areas.



CONTACTLESS ENERGY TRANSFER

It is used in:

- Conveyor trolleys (RGV).
- Transport systems in logistics centers.
- Linear-motion platforms with elevating table or battery-charging supply units.
- Overhead trolley systems (EMS).
- Floor conveyors (e.g. automated guided vehicle – AGV).
- Storage and retrieval systems.
- Typically preferred in sectors like the automotive industry, transportation, and storage logistics and sorting technology.

The benefits are many.

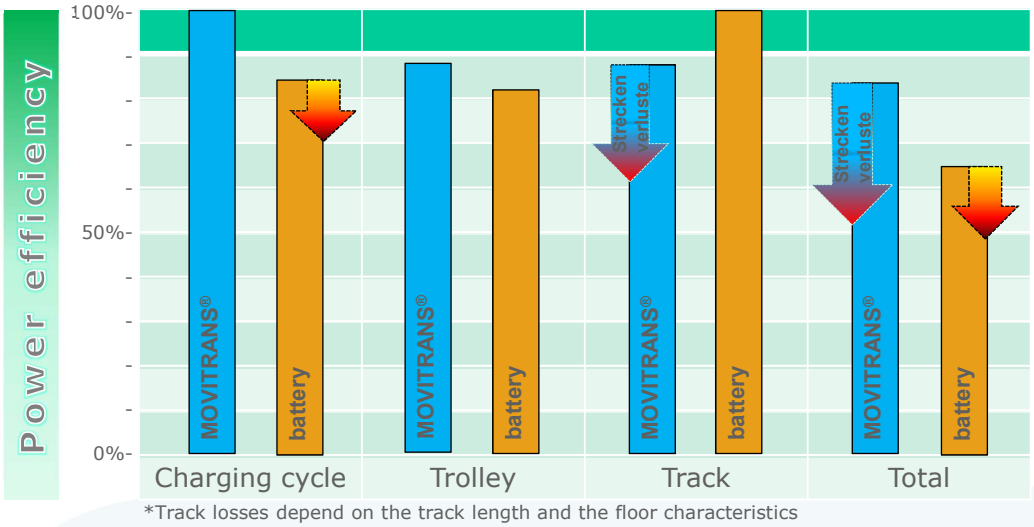
- Wear-free energy transfer – components not subject to wear and are zero-maintenance.
- Isolated cables – cables not impaired by contamination, moisture or temperature.
- High mechanical tolerances – Flexible design with curves and points; High speeds due to contactless energy supply; Simple track segmentation.
- Relatively little CapEx required to retrofit existing systems with traditional technology for use with the new technology.
- Safer than conventional systems; BGV B1 compliance for accident prevention regulation for electromagnetic field.
- Little effort required to extend or change track routes.

Increased productivity & profitability:

- High system availability.
- 3 shift operation possible: 100% utilization of vehicles.
- More space availability on floor.
- Low switchover costs when production conditions change.
- Uninterrupted transport cycles as no battery needs to be charged, inspected or replaced.

With MOVITRANS®, SEW offers a complete system solution, from the power supply to the drive, with project planning performed for the entire system; supported by its global presence and superlative local service.

Qualitative comparison – MOVITRANS® / battery technology



*Track losses depend on the track length and the floor characteristics
**Charging efficiency depends on charging factor/battery type

On how to create and nurture a fine talent pool.

SEW-EURODRIVE has always had a consultative approach with customers. A critical part of the value we provide is delivered by competent SEW engineers in discussion with our customers, with a considerable portion of time spent at the customer site. Given the wide range of our solutions portfolio – spanning mechanical, electrical, mechatronic, communication and programming competencies – the challenge of India's size and infrastructure, and the significant attrition rates that all companies in India have to contend with, this can only work if we have an extremely robust and in-depth selection and training process to ensure that our technical sales and support engineers are up to speed and capable of delivering the full SEW value proposition across the country. *In this issue, Drive India is in conversation with S Vasudevan, SEW's technical head, to ask him how he manages this challenging task.*

Typically what is the education / skill profile of engineers at the entry level of the organisation?

We induct fresh engineers as Graduate engineering trainees, qualified from reputed institutions in Electrical / Electronics / Mechanical disciplines.

Clarity in fundamentals of physics is a pre-requisite. In-addition to domain knowledge, we assess the candidate for his communication, analytical, teamwork and organisational skills.

Please give us a brief description of the various levels and types of training a SEW engineer undergoes.

SEW-EURODRIVE has the widest product portfolio in various domains like Mechanical, Electrical, Electronics, Software, Programming, etc.. These products have to work together in the field. In addition, SEW has its presence in most industry segments.

Training engineers on the above, to be able to deliver results in the field, is most challenging. We regularly revisit the training structure and content to ensure training effectiveness.

We have segmented the training modules into different levels like L1 Introduction, L2 Product, L3 Product, L3 Controlled, L3 Uncontrolled and L4 Specialist workshops.

When an engineer joins he will undergo L1 training, which is given by his immediate supervisor. L1 training content is standardised and uploaded to the intranet to ensure that the same standard of training is delivered across regions.

L2 product training is split into mechanical products and D&A products, with 5 days for each. In L2 training all the basic products are covered in detail, with intense classroom and practical sessions.

After completion of L2 Product training, the engineer will undergo more advanced training:

A. L3 Un-Controlled drives and Controlled drive training; qualification criterion is minimum 6 months of work experience after L2 Product training.

B. L3 Product training; qualification criterion is minimum 12 months of work experience after L2 Product training.

In L3 Uncontrolled drives and controlled drive training, the engineer will learn to select and size the drive components (Gearbox / Motor / Inverter) for different applications.

In L3 Product training the engineer will learn about advanced technologies like Industrial Gear box, Ex-protection, Motion control, etc..

Apart from core training modules that might be common to all, are there any specialist modules?

We conduct regular L4 workshop sessions for application engineers. Workshop will be on selected topics like Industrial gearbox, Programming the various synchronizing techniques like ISYNC, GEARING, CAM Profile generation, etc., as well as Kinematic applications.

What are some of the skillsets that you hope to build as a result of this training?

Once trained, the engineer should independently be able to consult with the customer on drive train required for his application and be able to size and select the optimal drive system for the customer's requirement.

The engineer should also be able to understand the problems and issues in existing drive trains and suggest a suitable solution.

In your opinion, how does the training provided at SEW compare with others in the industry? What sets it apart?

Our core value proposition at SEW is 'the ability to give solution rather than product'. This training equips our engineers to deliver this value proposition fully to the customer.

To what extent is the training content global vs. local?

We are serving the local market with global products. So the training on product features and its advantages are as per German (ie., global) standards. But the benefits which these products deliver is to the local customer. Understanding the customer problem is key. So practical exercises are designed by simulating customer problems and helping the engineer towards a structured approach to identify an appropriate solution.

What measures do you use to judge if the training is embedded in day to day working?

Customer's and immediate supervisor's feedback are the two mechanisms by which we understand whether the acquired knowledge is put in practice by the engineer.

Are there any initiatives in place to continuously upgrade knowledge and competence of engineers even after they have completed their core training modules?

We follow a mentoring process to ensure that the sales engineer is getting the required handholding on the technical front in day-to-day working. This process also helps identify knowledge gaps and develop / improve the technical capabilities of the mentee on a continual basis.

Each sales engineer is assigned to a mentor from the technical support vertical. Mentors will be the first point of contact for any technical query / guidance required by the mentee. The mentor will take responsibility for knowledge up-gradation of the mentee. Mentor and mentee will have both formal and informal interactions, ensuring a continual learning process for both.

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