

SEW
EURODRIVE

Drive India

The SEW-EURODRIVE Customer Magazine

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Attractive prizes
to be won!**
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Dear Reader

I last wrote to you in end July, shortly after the peak of the economic havoc wreaked by both the pandemic and the countermeasures against it. The situation looks immeasurably better four months later, at least for us in India, and at least for those with the staying power to have sustained their operations intact through the worst period. Thankfully the vast majority of you, the customers we serve, count themselves in this group, and so do we in SEW. Like all of you we are finding our feet in this new post-Covid world where so much has changed in such a short time. I am a firm believer that such periods of intense change are gold mines of new opportunities, and the future belongs to those who see and react to them the fastest.

For our customer story for this issue we look at a shop-floor project we did with TVS Motors in Hosur for their top-of-the-line Apache RR310 model. The main vehicle assembly line was designed with 16 AGVs using SEW-EURODRIVE's patented contactless energy transfer technology instead of the normal skid conveyor, thus providing a completely free floor space and no requirement for batteries or down time for charging. The system is running without problems for five years now.

The product story looks at our new EDNR... series of motors, certified for use in environments with explosive air-gas or air-dust mixtures. As local regulations become stricter and as India becomes a bigger global player for

export of both equipment and end-product in the chemical, agro-chemical and pharmaceutical industry, this motor and geared motor series is becoming increasingly relevant.

One of the key drivers for the manufacturing industry as a fallout of the pandemic, is going to be a much greater focus on automated, 24x7, real-time monitoring and diagnostics for critical shop-floor applications, the heart of the 'Industrie 4.0' paradigm shift. Our feature story is an interview with Bijal Shah, who heads the 'Product & Services' portfolio for SEW India, as he talks about the deep experience that SEW India is building up with products, solutions and interventions that map onto the budgets and needs of various customer applications.

I wish you happy reading!



M J Abraham
Managing Director, SEW-EURODRIVE India

SEW puts world-class bikes on the fast track at TVS Hosur facility.



SEW-EURODRIVE partnered with TVS Motors to set up a Vehicle Assembly Line using AGV technology, at their Hosur facility. A total of 14 stations and 16 AGVs were installed. This was the first ever two-wheeler AGV project for SEW India, and a first for TVS as well. Excellent teamwork and collaboration between experts from both companies was the key to the project's success.

TVS Motor Company is the third largest two-wheeler manufacturer in India, with an annual production capacity of 4.95 million two-wheelers and 1.2 lakh three-wheelers. The Hosur facility manufactures two- and three-wheelers for the domestic and export markets. The Vehicle Assembly Line starts with mounting the engine from the initial station to the final assembled two-wheeler output at the final station.

Departure from convention.

Conventional skid conveyors come with a host of drawbacks, like the requirement for regular maintenance, high maintenance costs and the need for more space. Since this is an assembly line for a series of world-class bikes, the challenge was to come up with an optimized solution that did away with these drawbacks and offered significant improvements like:

- Flexibility in terms of assemblage.
- Solution to accommodate multiple variants.
- Option for height adjustment by assembly technician.

Partnership par excellence.

Being the first project of its kind for both SEW and TVS, the project expectedly threw up several challenges, right from civil engineering requirements for making the grooves for the cables, to safety and production concerns (since work had to be executed in a running production area). Seamless coordination between SEW's D&A team, TVS's PED team and a collaborative approach was the key to resolving all of these.

A high-end, world-class solution.

The line uses SEW-EURODRIVE's patented contactless energy transfer technology, where the complete assembly line is available for inside

trolley movement since there is no fixed mechanical system installed in the line. The floor space is completely free and there is no requirement for batteries or down time for charging.

An added advantage is that whenever there is demand for increase in production, one can simply add an AGV based on the capacity of the line. Throughout the project, the team from SEW had to keep in mind all aspects like safety, positioning and navigation:

- Each AGV has a scanner in front for protection against collision and even human intervention.
- Absolute position is achieved through a transponder, and wireless communication is used for navigation of each AGV and accuracy of stoppage at each station.

Key benefits of the AGV installation.

- Flexibility of assembling different variants in the same line.
- Scalability that allows increase in number of AGVs as per production demand.
- Maintenance-free line, with no down-time.

A remarkably successful execution.

The Vehicle Assembly Line has been operational at

the TVS Hosur facility since May 2015 and has been running satisfactorily under full load. TVS requested SEW to accommodate another 10 AGVs on the same assembly line in order to meet rising demand.



"Flexibility, scalability and ergonomics are the key differentiators compared to conventional assembly lines."

-- Titus P, Member - PED

SEW's special range of motors balances safety, performance.

Across the world, SEW-EURODRIVE's explosion-protected EDRN motors are setting new standards in safety and performance. In Europe, North America and several other countries, new EDRN motors are available in twenty-eight sizes, each designed for use in environments with explosive air-gas and air-dust mixtures. Through these high-performance, explosion protection-compliant motors, SEW's cutting-edge drive technology aptly balances safety of the application with the variety of performance levels of the drives used..

EDRN EXPLOSION-PROTECTED AC MOTORS



Adhering to international norms.

The explosion-protected EDRN AC motors adhere to the most stringent international guidelines and standards. They meet the energy efficiency classification IE3 according to IEC 60034-30-1 and premium efficiency according to NEMA MG-1 and Directive (EU) 2019/1781.

The EDR..series is approved by PESO (Petroleum and Explosives Safety Organization), also known as CCOE – Chief Controller Of Explosives.

Areas of application.

These motors can be used in potentially explosive atmospheres as below:

- Wastewater & sewage treatment plants.
- Construction material processing.
- Conveyor applications.
- Wood processing.
- Chemical & pharmaceutical.
- Coatings & paint processing.
- Food processing (eg: grain/flour).
- Ventilation & climate control.

Advantages galore.

The EDRN.. motor series is suitable for varied applications in corner transfer units, extruders, travel and hoist drives in storage/retrieval systems, screw and belt conveyors, hoists and lifting stations, chain conveyors, freight elevators and pallet conveyors, among others. Their benefits to the customer can be classified into three categories.

Customer benefit 1

An extensive Ex-modular concept.

- Motors with design ATEX and IECEx have the same technical data and options.
- Motor selection is simplified as per the customer Ex-requirements and offer standardized support.
- Usable in almost any application, thanks to DOL, switching operation and VSD.
- Worldwide use due to range of certifications.

Customer benefit 2

The very best package, overall.

- Market-established, widely acclaimed modular concept maintained.

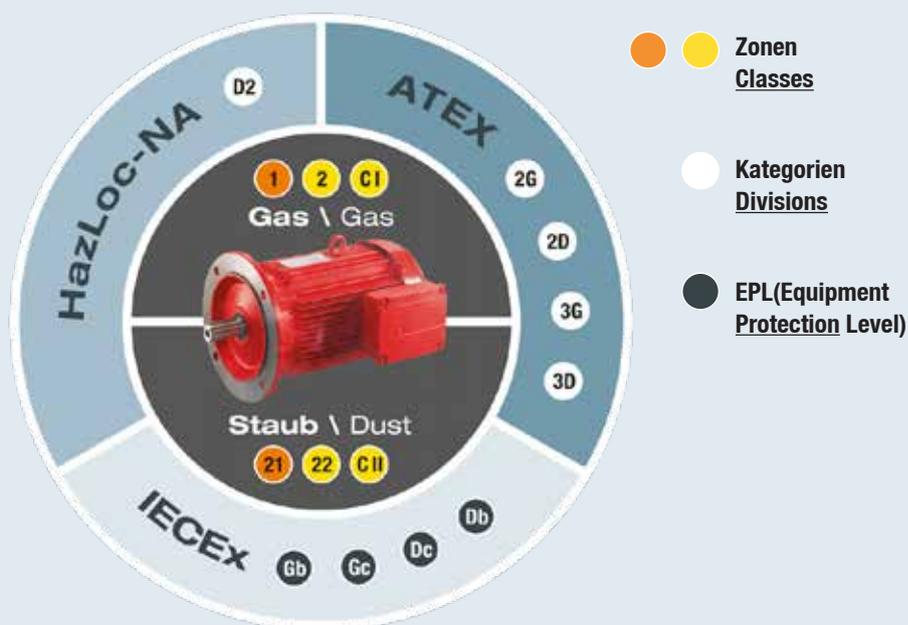
- SEW's proximity to customers and easy availability of parts ensure high responsiveness and quick delivery.

- Broad, global range of services allows SEW to offer quick, individualized service.

Customer benefit 3

Minimal transition effort for end-customers and OEMs.

- Same options, certifications, approvals and registrations as previously available.



**THUS
QUOTH**

Scientists investigate that which already is. Engineers create that which has never been.

-- Albert Einstein

SEW technology saves time, money by spotting trouble in Drives early.

In an insightful chat Mr. Bijal Shah, head of our Vadodara plant's Product Engineering and After Sales Service, explains to DriveIndia how prevention and diagnosis of malfunctions in Drives is made possible by the latest Condition Monitoring technology from SEW-EURODRIVE.



Firstly, could you explain to our readers what you mean by Condition Monitoring? What areas does it cover?

Preventive monitoring of the health condition of the Drive is called Condition Monitoring. It covers various aspects; like oil condition, vibration, noise, brake wear, insulation strength, temperature, wear particles, etc..

Condition Monitoring is often mentioned as a key building block of Industry 4.0. How so? What is its connection with Industry 4.0?

Industry 4.0 mainly talks about IoT, digitization of assets, AI/machine learning, big data analysis, process/production intelligence, etc.. Condition Monitoring helps customers to have the necessary information available for improved asset performance. Machine reliability is a key benefit of the Industry 4.0 concept and this is where Condition Monitoring fits in.

Why is Condition Monitoring important? Who does it benefit?

Condition Monitoring is important for uninterrupted operation. It can improve productivity by reducing down time, extend lifespan of the asset, allow the asset to work at its optimum condition, significantly reduce maintenance cost and avoid breakdowns.

Does SEW have a product or solution for brake monitoring? Could you tell us a little about that?

Brake is one of the important features of a motor. As a part of machine functional safety, it is important to know whether the brake is released or applied. Brake has a wearing part—the brake pad or disc. For effective brake function the brake pad should be checked periodically. SEW has an inductive brake sensor DUE available as an optional feature. This gives signals on brake release/application, as well as brake disc wear conditions. The user need not check the brake pad condition physically as a part of preventive maintenance, unless the DUE sensor gives warning signals.

What about oil monitoring? How can you help your customers with that?

Gear oil is an important part of any gearbox. It is the lifeblood of any gearbox. Gear oil tends to lose its

desired property over time. Based on our global experience, SEW has developed a special oil life monitoring sensor with Artificial Intelligence to define working hours available with the oil; after which oil replacement is required. This ensures optimum life of the gear oil before it is discarded, and in turn, it optimizes cost.

We have heard you talk about 'online' and 'offline' monitoring. What is the difference between the two?

Various parameters of the drive/gearbox can be checked either at a defined frequency or can be monitored continuously. The continuous monitoring of various critical parameters is termed online monitoring. Monitoring of parameters at defined frequency is commonly termed offline monitoring. In case of offline monitoring, we may lose some important events/condition of equipment where the performance might have crossed boundary conditions and restored later.

Does SEW have solutions for customers in these areas?

SEW has various sensors and monitoring options in their standard drives. Based on application and requirements they can be built in as a part of original supply. Those features can be added at a later stage too, with some modification. Brake monitoring, oil bath temperature monitoring, vibration monitoring, oil life monitoring are all commonly offered solutions to customers.

What new offers from SEW can customers expect in the near future for Condition Monitoring?

SEW has developed solutions for continuous Condition Monitoring system for large assets as well as smart sensors, to make drives ready for Industry 4.0.

Tell us about a couple of examples where a customer really benefitted from Condition Monitoring?

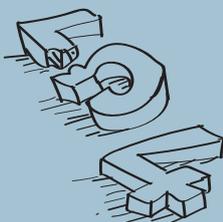
We have various examples, but I found a few of them very interesting. Our industrial gears are widely used in the pigment industry. In this industry, the shop floor is quite full of pigment particles. The gear drives are checked only in case of breakdowns. We had

repetitive repair service requirements from one of our customers. Our service team and customer maintenance team had a joint discussion, and an offline condition-monitoring program was started. During the first Condition Monitoring visit itself the root cause was identified and after rectification, all breakdowns stopped. The customer has benefited from maximum uptime of equipment and reduced maintenance cost.

One more example which I would like to share is from a coal plant/coal crusher. Here the customer had their own reliability team. They identified one of our gearboxes as showing a higher vibration. The customer asked for SEW support to resolve the problem. Our vibration analysis was able to identify the root cause. The real problem was unbalanced load on the equipment, but it was indicating as vibration on the gearbox. When the customer checked their machine internals, they found one of the hammers damaged. After rectification, it was again back to smooth, trouble-free operation. Timely rectification of the problem helped avoid unplanned breakdown of equipment and reduced impact load on the gearbox as well.

Mr. Bijal Shah is a mechanical engineer by qualification. He joined SEW India in 2004. He has held various roles that include Production, Quality, Maintenance, QMS-MR, Plant engineering, Service, etc.. Since 2010 Mr. Shah, located at Vadodara, is Head of SEW India's Product Engineering and After Sales Service. Prior to this he has worked with Harsha Engineers, an Indian multinational auto ancillary, for eight years in various positions.

JUST KIDDING



Sir Isaac Newton in his Gurucool.

Sir Isaac Newton one day cleared his throat and asked a group of medical, botany, management and engineering students: 'How can you write 4 in between 5?'

The medical students rolled their eyes, 'The mate's cognition is impaired.'

The botany students looked at each other, 'Impossible!'

The management students quickly scanned the internet and declared: 'Nah! Not done.'

The engineering students humbly offered, 'Quite easy, Sir Newton. It's F(IV)E.'

And thereafter, Newton's theories were best applied in the field of engineering.

Reader Quiz

Please answer the following questions for a chance to win Amazon gift vouchers! Just send an email with the question number along with the correct answer (e.g Q1. - a) to marketing@seweurodriveindia.com. Please include your full name, designation and company working for.

Winners will be chosen through a lucky draw and the lucky winners will each get an Amazon gift voucher worth ₹1,000.

We thank all readers who participated in our previous quiz and hope for your continued support! We also hope you enjoyed your voucher.

1. How many AGVs did SEW install at the TVS Hosur assembly line?

- a) Eight
- b) Ten
- c) Sixteen
- d) None of the above

2. Which of the following are the benefits of Condition Monitoring?

- a) Reduced downtime
- b) Extended lifespan of asset
- c) Reduced maintenance cost
- d) All of the above

3. The EDRN series is ideal for use in which of the following industries?

- a) Automobile industry
- b) Surgical equipment
- c) Waste water and sewage treatment
- d) None of the above

4. What are the key benefits of the AGV installation?

- a) Flexibility of assembling different variants in the same line
- b) Scalability that allows increase in number of AGVs as per production demand
- c) Maintenance-free
- d) All of the above

5. SEW's inductive brake sensor DUE gives signals on:

- a) Brake release
- b) Application of brake
- c) State of wear of brake disc
- d) All of the above

6. Across the world, in how many sizes are EDRN motors available?

- a) Nine
- b) Sixteen
- c) Twenty-one
- d) Twenty-eight