

Drive *India*

The SEW-EURODRIVE Customer Magazine



**Auto-Pouring Machine for
a safer, more productive
Foundry industry.**

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Dear Reader

The US election has delivered an unexpected result. What seems clear going forward is that we are in for major changes both in style and substance. Back at home, our government has taken decisive action against the parallel economy, and the green shoots of new growth are starting to become evident in some long moribund sectors like passenger vehicles, farm equipment and non-ferrous metals. On the other hand, there is little indication yet of a recovery of the private sector capex cycle. GST promises a host of new opportunities in a year or two. However, the immediate future is likely to involve intense work, to first understand and then align ourselves and our systems to the new legal and regulatory requirements. To summarize, new challenges, new opportunities and a changing business landscape – in short, business as usual for us in India.

At our core, SEW-EURODRIVE is a technology provider for drive and motion control automation in an industrial or logistics environment. The bulk of our global business comes from Original Equipment Manufacturers who are specialists in a particular industry. We work closely with these OEMs to develop solutions which are then delivered to End-Users in that industry. We play the same role here in India, and for our cover story we showcase our development work with one such OEM, Sree Sakthi Equipments for a critical motion control application – auto-pouring of molten metal.

In our product section, we feature a hybrid motor that combines the simplicity of operation and cost-effectiveness of a standard induction motor with the precise speed-control properties of a synchronous motor. And in our features section we have an interview with Mr. Udo Aull, our new Managing Director Sales in Germany.

I wish you happy reading!

M J Abraham
Managing Director
SEW-EURODRIVE India

Enhancing productivity and safety in the foundry industry.

Manual pouring of molten metals into moulds is dangerous and energy inefficient. However the only alternative used to be expensive, imported auto-pouring machines from Germany and Japan. Coimbatore-based Sree Sakthi Equipments has now developed an indigenous auto-pouring machine in a far more cost-effective package, fully supported by SEW's products, motion control expertise and onsite support.

Sree Sakthi Equipments Company manufactures foundry equipment and integrated sand plants, and has a wide client-base spread across the country. SEW has already worked successfully with them to develop and standardize gearbox and gear-motor solutions for their sand mixing and conveying applications. However, an auto-pouring system was a totally different level of challenge due to the requirement for precise synchronization of 4 axes with changing pouring height and ladle weight, working environment of dust and temperature, and the safety and reliability requirements. The final solution showcases SEW's ability to integrate its range of products (field devices, control devices, IOs, HMIs and control software) to deliver a complete, cost-effective and reliable solution.

The issues with manual pouring.

In a foundry, molten metal heated to 1,500 degrees Celsius is poured into moulds to create castings. Conventionally, manual labor is used to carry the molten metal in a ladle to pour into the mould manually. The disadvantages of this method are many.

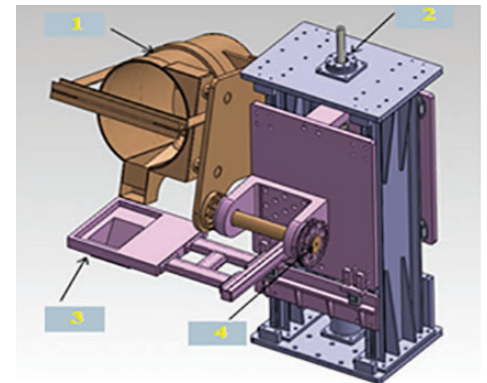
- Excessive time required.
- Frequent metal reheating.
- Significant safety risk.
- Manpower management for the hazardous job.
- Spillage loss.
- Higher rejection rate.

Together for a better solution.

The engineering teams of SEW and SSEC came together to chalk out a better solution. An automatic pouring machine would need to fulfill the following criteria:

- To move in three axes (LT, CT and HOIST).
- Fourth axis movement for accurate tilting of the ladle.
- Synchronized LT movement with mold conveyor driven by hydraulic pusher.
- Online accurate weight measurement feedback.
- Multi-axis movement of LT, CT, HOIST and tilting.

Working in partnership, teams from both sides found a solution that was innovative, feasible and safe.



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1. Ladle
 2. Hoist Motor Mounting
 3. Pouring Basin
 4. Tilting Motor Mounting
 5. CT Motor Mounting
 6. LT Motor Mounting
 7. Mould Box

Benefits of Auto-Pouring Machine.

- Higher repeatable accuracy.
- Reduced process time.
- Manpower reduction.
- Energy savings due to reduced metal reheating.
- Safety issues sorted out.
- Flexible plant control.
- Reduced spillage.
- High productivity.
- Data logging PC Interconnect.

“It was a long held desire for Sree Sakthi Equipments to be able to indigenously develop a safe, reliable and cost-effective Auto-Pouring Machine for our valued customers. With SEW-EURODRIVE we found exactly the right partner to achieve this dream.”

- S. Karthikeyan – Executive Director, SSEC

For more information on SSEC, do look up their website: www.sreesakthiindia.com

Innovative, economical and compact: The energy efficient motor concept for IE2 to IE4.

The new DR...J LSPM motors (Line Start Permanent Magnet) are in fact the next chapter in technology, featuring an innovative, energy-efficient, economical and compact motor concept for IE2 to IE4 efficiency classes.

The Line Start Permanent Magnet motor DR...J is a 3phase asynchronous AC motor with a squirrel cage rotor that contains permanent magnets. After an asynchronous start, the motor synchronizes with the supply frequency and runs in synchronous operation. Due to the operating principle there are no rotor losses leading to impressive efficiency in a compact design. The design combines the cost-advantage of the durable and rugged asynchronous motor with the compactness, precision and efficiency of the synchronous motor. It is available in three variants for three energy-efficiency classes: IE4: DRU..J (LSPM technology), IE3: DRP..J (LSPM technology) and IE2: DRE..J (LSPM technology).

LSPM vs a conventional system.

A standard DRE90M motor with 1.1 kW power rating caters to the energy-efficiency class IE2. A DRE80SJ motor with LSPM technology will suffice for the same requirement. From an application perspective, the LSMP motor is ideal where precise speed control is required at reasonable costs.

Features and advantages.

- Synchronous operation with supply frequency.
- Slip-free speed control without encoder feedback, offering lower installation and purchase costs.

DR...J SYNCHRONOUS MOTORS



- Constant torque in the speed setting range without forced cooling fan.
- Smaller frequency inverters usable due to reduced power consumption.
- High efficiency.
- Lower energy consumption.
- Good power factor.
- Compact and sturdy design.
- Usable as individual or group drive on the grid and with a frequency inverter. Low maintenance.
- Many additional features of the modular DR..motor system available.
- Can be combined with the 7-series of the modular gear unit portfolio.



DID YOU KNOW?

Freezing cold research, burning hot invention.

Roy Plunkett, a scientist with DuPont, set out in 1938 to make refrigerators home-friendly by replacing the refrigerant, mostly ammonia, sulfur dioxide and propane. Imagine his surprise one day, when he opened the container of a particular sample he had been developing, and found all the experimental gas gone! Instead, what remained in the container was a funny, slippery resin that resisted extreme heat and chemicals.

The 'funny resin' was called Teflon, and it was first used in the Manhattan project, then in the automotive industry. But finally, in the 1960s, Teflon came to be used in non-stick cookware.





India – an increasingly strong element in our future plans.

Udo Aull, the new Managing Director for Sales, Marketing and Service at SEW-EURODRIVE Germany, and Head for the global Automation Solution Business, in a conversation with *DriveIndia*.

Firstly, could you tell us something about yourself and your role in the SEW organization?

☞ Hello, I am Udo Aull, Managing Director Sales, Marketing and Service at SEW-EURODRIVE Germany, and for SEW's global Automation Solution Business. I moved from Shanghai, China one year ago and joined SEW-EURODRIVE. Prior to this, I led various industrial automation companies headquartered in the USA, Europe and Asia. I started my career in computer science and engineering, followed by product management, sales management and general management assignments.

How have you seen India's business climate change in the last decade or so?

☞ The business climate has become more business- and investment-friendly recently, especially with the 'Make in India' initiative. However, in the current environment, growth remains a problem globally and even a rapidly developing country like India cannot fully escape the effects of that. But I see a clear direction and intent in India to improve infrastructure and improve the ease of doing business, and I am convinced this will lead to large and continuing investment opportunities in the years to come.

Given your experience, if you had to guess how the Indian industry is going to evolve over the next 3-5 years, what would you say? How does this compare to other developing economies like China?

☞ Every country is unique and has its own path for development, and that is especially true for giant and ancient cultures like China and India. Our job is to be fully invested in each country and to understand and support the development of the local industry and customers with our products and solutions. Here, SEW's philosophy of giving a lot of freedom to the local management in each country to respond to local opportunities within the framework of SEW's quality, service and product imperatives, has really given us a strong local position in both countries.

Which way do you see the Indian industry moving

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in the future? Which Indian industries do you think have what it takes to compete globally?

☞ The broad industry trends of automation, energy saving, sharing and using of information in ever larger networks is going to be common for everyone everywhere. India offers cost-effective engineering, scale and depth of competence in information technology, a huge market and a massive infrastructure investment opportunity. Industries that leverage on these strengths and local factors will be able to compete globally.

Which are some of the countries that are leading-edge when it comes to innovation? Where does India fit in?

☞ In our field of drive and motion control, Germany is definitely the country at the leading-edge of technology. Because our Headquarters and Innovation Centre are in Germany, we see Germany as the driver for new innovations. In fact innovation is the lifeblood for SEW-EURODRIVE, and our primary differentiator in the market. Here in Germany we can test new ideas and products efficiently and effectively. After proving them locally, we extend them to our customers all over the world. In SEW I see the innovation role of a country like India in taking our technologies to applications which have not been done anywhere else in the world. In fact, we have a very strong automation team in India which has done exactly this.

Specifically, what are some of the big trends in Automation globally?

☞ SEW-EURODRIVE is looking at the following trends: Custom-tailored products and the early positioning of new technologies and innovations, further innovations of Industry 4.0 and system sales. Engineering and consulting for automation projects will find a market as well as the knowledge of project management for successful completion of customer projects. In short: to provide everything from one source, from planning, installation and operation, to maintenance.

What role does Automation play in a low-cost market like India? Will adoption be slow?

☞ Fundamentally, automation is about increasing

the productivity of human capital which is a prerequisite for a general improvement in income per person. India, like any other country, will view this as a desired outcome. Of course, a low-cost country like India will in general be in a different stage of its automation journey compared to higher-cost countries, but even here because of the scale of the markets of countries like India and China, you will find industries and customers in these countries which are at the outer edge of adopting automation technologies.

Where does India fit into SEW-EURODRIVE's global strategy?

There is no doubt that India will continue to grow at a much faster pace than the rest of the world and it is only a matter of time before it is in the top 5 and then top 3 economies in the world by GDP. In parallel, as per capita income increases, automation will also increase. Both trends will throw up huge opportunities for SEW-EURODRIVE and for our customers in India, and we will continue to invest ahead of requirement, so that we can support this development. Already the fact that we have 3 assembly plants in India in the 3 leading manufacturing states of Maharashtra, Gujarat and Tamil Nadu shows our commitment to the country.

What are some of the new innovations and applications that Indian customers can expect from SEW in the next couple of years?

☞ We are bringing out a new electronic modular system called the new generation 'C'. For example, MOVI-C®, is the new modular concept for automation systems. The premiere of MOVI-C® was presented at the fair 'SPS' in Nuremberg, which took place in November 2016.

Work apart, what are the things that you look forward to when in India?

☞ Most exciting for me, I visited the Taj Mahal some time ago and was impressed by the size and craftsmanship. The Taj Mahal is a reminder to all of us what man can do if dedication, professional will and confidence are aligned.

Besides, I'm looking forward to meeting people across India to get a better insight into the tradition and culture of this sub-continent, and to gain face-to-face understanding of the different behaviors, and as a result to come up to good international cooperation.