

SEW
EURODRIVE

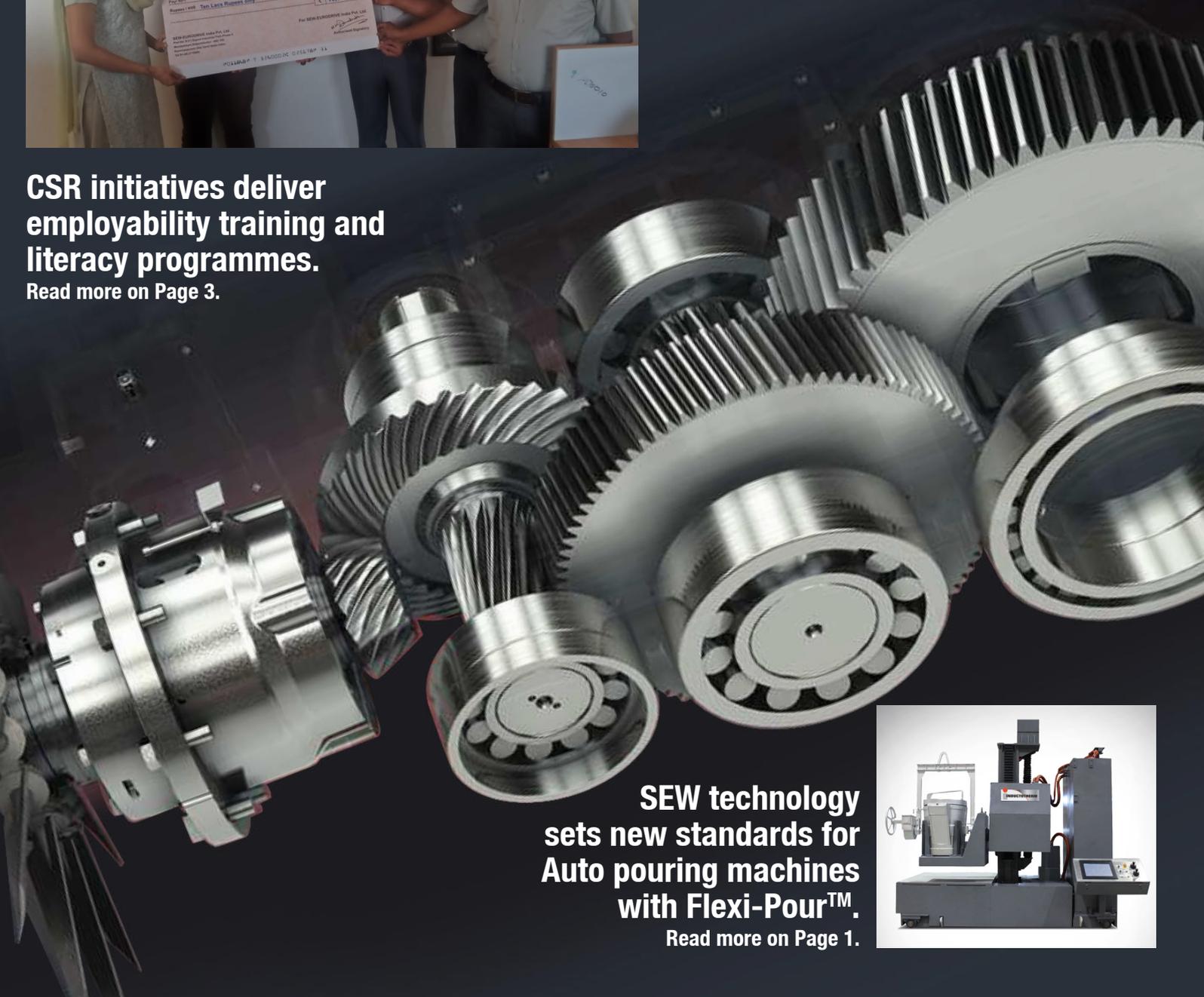
Drive India

The SEW-EURODRIVE Customer Magazine



CSR initiatives deliver employability training and literacy programmes.

Read more on Page 3.



SEW technology sets new standards for Auto pouring machines with Flexi-Pour™.

Read more on Page 1.



Dear Reader

I had mentioned the darkening economic scenario in my previous editorial four months ago. For manufacturing, and especially for those of us in the capital goods sector, this is a grim reality now. Government numbers corroborate the anecdotal evidence with the IIP number for Capital Goods dropping by a huge 17% for the last quarter. The mid to lower end of the market seems most badly affected. Given our positioning at the upper end of the market, we are still holding on to reasonably good growth numbers at SEW India, but we will have to see how long that continues. On the positive side the government has belatedly realized there is a genuine problem and is attempting corrective action. A demand side slowdown is not something India has faced before, so it is a steep learning curve for all of us used to dealing with slowdowns brought about by supply side constraints.

Our customer story for this issue looks at the Flexi-Pour™ system for the foundry industry that the Ahmedabad-based company Inductotherm India has developed with drives, controls, programming and engineering support from

SEW India. Inductotherm India is part of the US-headquartered Inductotherm Group, a world leader in heating solutions for the metals industry, and this Flexi-Pour™ system is an example of the increasing number of cases of SEW India working with the Indian arms of multinational companies to deliver locally-developed, global-quality industrial systems.

Our product story features the next generation of our larger stand alone industrial gearboxes, the Xe series. Well-timed from my perspective, because



this year we have huge growth in this product vertical, albeit from a low base.

I wish you happy reading!

M J Abraham
Managing Director, SEW-EURODRIVE India

SEW technology for Inductotherm raises the bar for automated pouring machines with the newly developed Flexi-Pour™ system.



Inductotherm (India) is part of the global Inductotherm Group, a leader in the development and manufacture of technologies, products and systems for the heat-driven transformation of metals. SEW-EURODRIVE partnered with Inductotherm (India) in its Flexi-Pour™ application. The collaboration is nothing short of a case-study for others in the industry to emulate.

The need for a technologically advanced solution.

Inductotherm (India) wanted to partner with SEW-EURODRIVE for the development of its

specialized Flexi-Pour™. For metal castings of automobile and machine parts, the foundries comprise the furnace, moulding line and the pouring machine.

The moulding line consists of a moulding machine and a mould transporting conveyor. The moulding machine produces sand moulds which are then filled with molten metal by the Inductotherm Flexi-Pour™, and then placed on a cooling conveyor which moves at the same pace as the Pouring area conveyor. At the end of the conveyor, the solidified castings are separated from the moulds and further processed.

Using its specialized MoviPLC-HMI, MoviAxis and CMPZ servo gearmotors, SEW-EURODRIVE provided end-to-end automation solution for Inductotherm's Flexi-Pour™.

Working together to raise the bar.

With tough challenges faced by today's foundries, the new generation of pouring machines need to have higher accuracy as well as better response time. When the team at Inductotherm approached SEW-EURODRIVE's engineers, the project planning needed to fulfil the following critical criteria:

- To communicate with external encoder mounted on the mould line.
- To communicate with external LASER encoder.
- To accommodate the feedback from pyrometer.
- To achieve synch pouring, weight pouring and synch + weight pouring.

Inductotherm (India)'s experienced team of technological experts provided minute requirements, logics and control philosophy for this metal pouring process.

The SEW-EURODRIVE solution.

SEW engineers worked in partnership with Inductotherm to provide automation solution for the Flexi-Pour™. The machine consists of ladle-tilting A-axis, long travel X-axis, cross travel Y-axis and height adjustment Z-axis movements of the trolley.

Features:

- X-axis connected to laser encoder for slip correction during long travel movement.

- X-axis also connected to external EtherCAT encoder for synchronized movement of pouring machine with moulding line if pouring process is running.
- Precise point-pouring achieved using MultiMotion functionality of MoviPLC by tracking Y-axis & Z-axis in accordance with tilting A-axis. Virtual axis functionality of MoviPLC used to minimize vibrations.
- Loadcell-based weight pouring control achieved using intelligent software & recipe management.
- Pyrometer-based intelligent software developed to automate pouring cycles.
- Also developed two types of pouring machine: 3-axis (CT, LT & Tilt) and 4-axis (CT, LT, Tilt & hoist).
- Operator-friendly large 17" SCADA screen.

Why the solution was just-right.

Inductotherm and SEW worked together extensively on the project-planning for this ambitious project. The following are the key benefits of the solution.

- Solution: From sizing servo gearmotors to HMI-MoviPLC programming.
- Precise Point pouring trajectory – motion interpolation & electronic camming.
- Scalable & adaptive intelligent software:

numbers of mould covered by long travel can be adjusted, covers all sprue cup positions, different mould lengths can be adjusted, direction of external sync encoder can be reversed, direction of hot & cold sides can be adjusted.

- Accurate weight pouring with Loadcell (Accuracy +/- 500gms). Flowrate can be adjusted based on recipe management.
- Fully automated pouring sequence.
- Slip compensation – trolley wheel slip removal with LASER Encoder, with an accuracy of +/- 2mm.
- Inoculation control modes: timer-based, pyrometer-based, pouring sequence-based.
- Different level of password security: operator, engineer, administrator.

Forging a beginning.

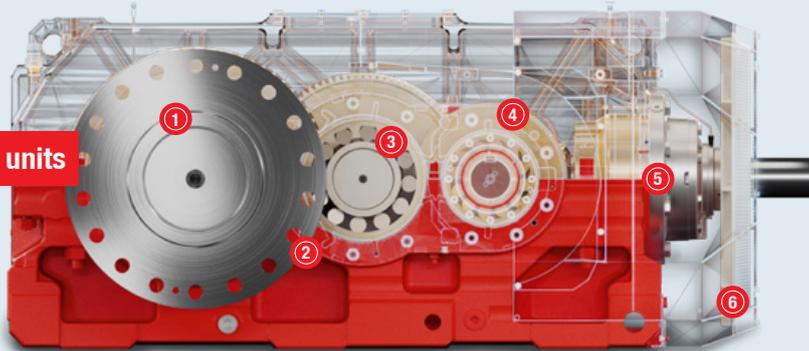
The first solution was completed and installed in November 2016. Subsequently, solutions for a total of eight machines have been delivered and are running successfully. Inductotherm (India) have in fact started to export their pouring machines worldwide.

Inductotherm's Flexi-Pour™ (Automated Lip Axis Pouring) is designed to maximize safety & productivity for all foundry needs.

SEW takes the trusted X series to new levels of customization.

SEW-EURODRIVE's new generation X.e is the latest entrant in the widely used X series gearboxes. It is tailored precisely to meet the operational and environmental conditions of an application. Customization to individual client requirements is made possible by significant improvements to the hardware, and a redesigned, networked calculation landscape. These give generation X.e its superior efficiency, enhanced safety and endurance for long periods even under extreme operating conditions.

Generation X.e gear units



Putting past learning to good use.

The generation X.e has been designed using the experience garnered from industries like mining, cement and port logistics. These, combined with the latest insights in calculation, enable the new series to offer customised configurations for applications such as cranes, conveyor belts, mixers, crushers and more.



Extended functionality of the X.e gear units:

- New bevel pinion housing.
- Ideal bearing preload.
- New gearing topology.
- New fan concept.
- Contactless seal.
- Optimized oil level.

New design, new benefits.

The X.e series takes customization to a higher level, bringing benefits that are unique, and setting new industry benchmarks.

Contactless sealing systems: ① No wear at the input and output shaft, no loss of oil, and enhanced operational safety.

Customer benefit: Significantly longer maintenance intervals in drive systems.

Thermally improved oil level: ② Strikes the delicate balance between reducing the oil limit

and obtaining optimal heat dissipation by optimally reducing the oil quantity.

Customer benefits:

- Savings of up to 29% oil volume; increased oil service life by up to 110%.
- Reduced churning losses by up to 87.5%; increased thermal limit rating by up to 32%.
- Optimized bearing preload: ③ With order-specific settings the preload is always set right, reducing heat formation spots. The low compression greatly increases bearing service life.

Customer benefits:

- Increased gear unit bearing service life by up to 220%.
- Increased thermal limit rating by up to 24%.

Optimized gearing topology: ④ With the optimized tooth flank topology not as vulnerable to displacements, the meshing interference is better tolerated. This reduces downtimes and increases system availability.

Customer benefits:

- Higher operational safety of drive when external forces affect shafts.
- Increased static overhung loads by up to 41% possible in case of unfavorable application angles.
- Lower gear unit noise due to optimized tooth meshing.

Improved bevel pinion housing: ⑤ Optimized oil flow due to better bevel pinion housing, which further facilitates a higher thermal rating and offers enhanced operational safety. Even with higher power transmission, there is no risk of unexpected machine downturns.

Customer benefits:

- Increased operational reliability and improved

cold start behaviour.

- Increased overall limit rating by up to 153%.

Universal fan guard: ⑥ The universal fan guard permits arrangement of various sizes (boost, balanced, silent) and fan types under one cover. This enables fixed installation dimensions in customer systems and effects optimal cooling while the given sound pressure limits are adhered to.

Customer benefits:

- Reduction of oil bath temperature by up to 36%.
- Increased thermal limit rating compared to current axial fan by up to 54%.
- Lowered sound pressure level compared to current axial fan by up to 7 dB(A).

A classic reinvented.

Aptly enough, the 'e' of generation X.e stands for efficiency, experience and excellence. Extended possibilities of this new idea can be summarized as multiple internal optimizations with maximum compatibility, that can lead to a wide range of potential savings in customer applications.



When a little kindness turned lifesaver.

Recently one of SEW-EURODRIVE's teammates, Dattatray Thakare, went beyond the world of everyday work to help save a child's life.

It began with Datri, an NGO that visited SEW's Pune plant. Datri creates awareness about stem cell donation and its contribution in treating blood cancer and other blood disorders. As part of SEW-EURODRIVE's Corporate Social Responsibility initiative, Datri was invited to the Pune plant for a presentation and donor registration. Dattatray Thakare, Assistant Manager, Logistics, was found to be a perfect match for a four-year-old child who desperately needed stem cells for treatment. Mr. Thakare happily donated his stem cells, potentially saving the little one's life.

SEW helps the youth and underprivileged discover brighter futures.



Through unique partnerships with carefully chosen social service organizations, SEW-EURODRIVE contributes to the betterment of the less fortunate by helping train them in employable workplace skills.

SEW-EURODRIVE has always been driven by a combined focus on ecology, economy and social responsibility. The company believes in giving back to the society that sustains it. It is hence closely invested in the communities it functions out of—the three locations of Por (Baroda), Sriperumbudur (Chennai) and Chakan (Pune), where its three assembly plants are.

The company partners with chosen NGOs to impart skill development, literacy programs, computer training, employability training and allied areas, which are closer to its own core strengths.

Key focus areas.

It is the vision of SEW-EURODRIVE to bridge the gap between formal education available in the less developed communities and the skills candidates require to make use of the opportunities available to them, be it in furthering their education or in getting a job. With this in mind, SEW partners with NGOs that work for the betterment of these communities, often working with them on a long-term basis. It is through a rigorous process that the company identifies its NGO partners; one that closely examines their credentials, track record and areas of work.

How the NGO partnerships work.

- Rigorous selection process to identify credible NGOs with proven track record.
- Long-term partnerships in order to create significant impact.
- Senior management involvement to work closely with the NGOs.
- Employees volunteer their time and expertise.

Four partnerships to reach out better.

At present SEW-EURODRIVE is working with four NGOs in the plant locations to take its mission forward. In Pune the company has, for several years now, been partnering with Akshara to help set up and run their computer laboratory. In Sriperumbudur, SEW works with Bhumi, one of the largest independent youth volunteer NGOs in the country. In Baroda, the company is hand-in-hand with Sevathirth towards the training and vocational rehabilitation of disabled youth. And since March this year SEW-EURODRIVE has been an associate partner with Pune City Connect in making possible the flagship Lighthouse project, which works for the service of backward urban youth by training them in employable workplace skills.

With Akshara to make lives better.

SEW-EURODRIVE partnered with Mahindra United World College and their Outreach program

Akshara to set up and run, since June 2016, an e-learning centre at Asade Village, Mulshi Taluka Gram Panchayat School, 40 km from Pune. Akshara works closely with over 2,000 residents in about six villages in Mulshi Taluka, helping rural communities here discover a better future through specific initiatives.

- Classes for school and college students, women entrepreneurs and villagers.
- Theoretical and practical training aimed at employability.
- Basics of MS-Office, Introduction to MS-Word, PowerPoint, Effects and Applications of Paint.
- Keyboard typing course and Basics of MS-Excel.
- Certificate distribution and motivation for more people to join.

With Bhumi to turn dreams real.



Bhumi is an NGO that works to provide youth a platform that bridges the gap between educated and uneducated. It offers comprehensive educational support to over 20,000 children across India. SEW-EURODRIVE is at present working with Bhumi on the implementation of their program at two schools in Chennai. This project benefits over 320 children, 30 teachers and two school leaders.

- Providing language and STEM education, life-skills support, scholarships for higher education and help in development of these schools.
- Helping school leaders with a development plan that helps realize the school's vision.
- Supporting teachers by coaching them on lesson planning, effective pedagogical

practices and effective measures of learning.

- Providing leadership platforms to students to help them tap their potential to the fullest.

With Sevathirth to rewrite destinies.

Sevathirth is an employment / self-employment training, vocational rehabilitation and research centre for all categorized disabled persons that include those suffering from or cured of leprosy. SEW-EURODRIVE partners with the NGO, which has been able to settle over 900 leprosy affected and 2,500 disabled, helping them get treated, and imparting education and skill development training.

- Training includes latest IT courses like Electric Relay Assembly, Computer and Braille Computer Education, employment / self-employment training for visually impaired, etc..
- Employment training program for disabled in association with Bangalore-based Pankh, providing 100% job placements in 60 days.
- Training in making commodities for homes, schools and offices, such as incense sticks, candles, washing powder, notebooks, etc..

With Pune City Connect to light the way.

SEW-EURODRIVE has recently partnered with Pune City Connect (PCC) in its flagship Lighthouse Project, a sustainable livelihood program for urban disadvantaged youth. As of now, six Lighthouses operate in the wards of Aundh, Yerawada, Hadapsar, Warje, Bhavani Peth and Bibwewadi. An important requirement of this project is automation in data management. SEW helps with this, catering to five different areas.

- Tracking the progress of the Lighthouse / digital empowerment students.
- Enabling evidence-based decision making to ensure program effectiveness.
- Providing greater visibility with respect to program milestones, for better review at each stage of a program.
- Capturing legacy data from the commencement of the program. This systematic documentation will provide direction to future interventions of a similar kind.