

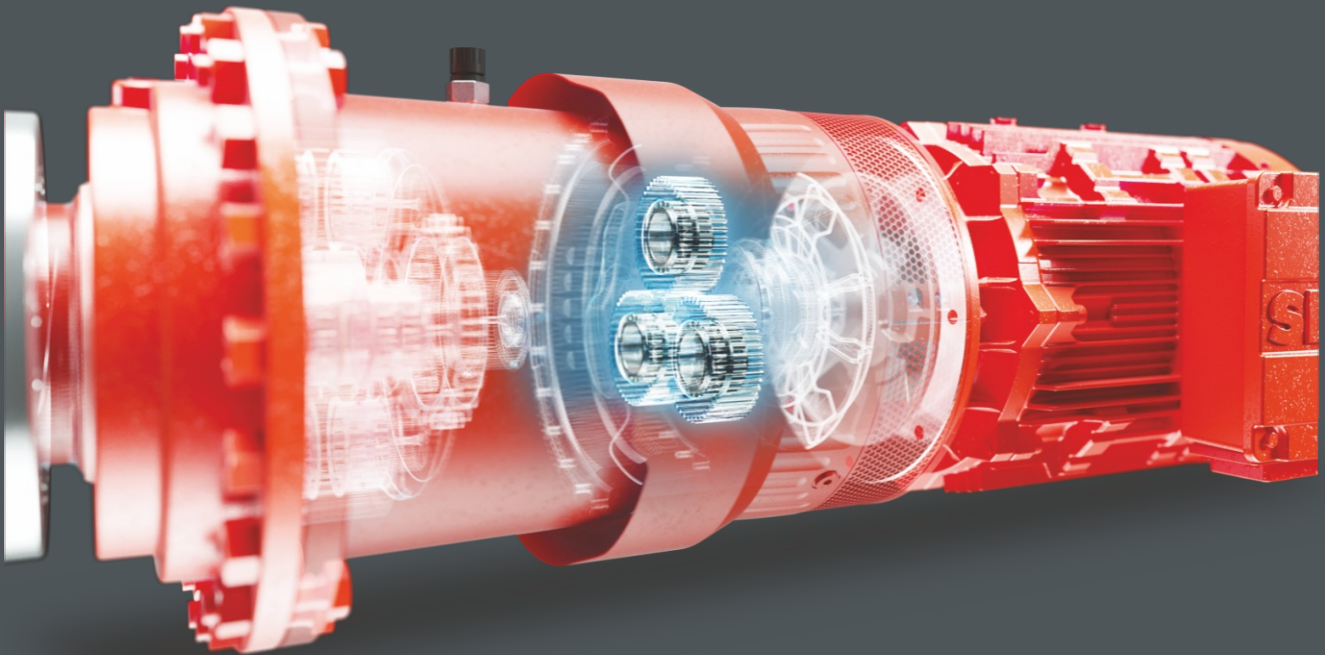
# Drive India

The SEW-EURODRIVE Customer Magazine

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Dear Reader,

While India gains recognition in space and has emerged as the fastest-growing major economy in the world, we at SEW-EURODRIVE India have a healthy sales growth of over 20% in the first three quarters of 2023. Our order book growth however is virtually flat, mirroring the moderated growth of India's capital goods industry.

At the core of our value proposition lies our commitment to delivering solutions rather than products. This especially differentiates how we operate when it comes to successfully helping End User customers with difficult, long standing problems, where other solutions have been attempted. Our customer story details one such case with Birla Copper's Dahej plant.

For the product story we feature our new P2.e planetary units. These units not only completes the range of our P series with low ratios, but are also compact with high thermal rating making it ideal for applications in mixers, crushers, screw conveyors, and more. SEW's

P2.e sets a new standard, combining flexibility, efficiency, and performance for diverse industrial needs.

In our features section, we present an interview with Vineeta Badawe, the architect who designed our assembly plants in Chennai, Pune, and Tapukara. Her creative excellence has truly made our plants unique.

I wish you happy reading!



*S. Vasudevan*

S. Vasudevan  
Managing Director, SEW-EURODRIVE India

# A Seamless solution: SEW's customized gearbox for Hindalco's Kangaroo Crane

Birla Copper, a subsidiary of the Hindalco Group, boasts one of the world's largest single-location copper smelters situated at Dahej, Gujarat. With an integrated port facility, Hindalco's Dahej Harbour and Infrastructure Limited (DHIL), plays a pivotal role in supporting Birla Copper's logistics and transportation needs.

DHIL handles 4.5 MT of solid bulk cargo yearly, using two Kangaroo Cranes supplied by a Dutch OEM. Different grabs are used to handle each material like coal, copper concentrate and rock phosphate. The grab is operated through cables, the hoisting cable is driven by one gearbox and the mechanism for opening and closing the grab is operated by another cable driven by another gearbox.

### Problem with Existing Gearbox

DHIL faced a daunting challenge when the housing of the non-SEW hoist gearbox in one of their cranes developed cracks and failed. Seeking a solution, DHIL engaged a local gearbox manufacturer to diagnose the issue and find a remedy. Their conclusion was that the failure was due to overhung load exerted by the rope drum directly on the cast iron gearbox housing. The recommended course of action given was to replace the existing gearbox with a new one with a fabricated housing to address this issue.

While the new gearbox supplied by the local manufacturer resolved the housing problem, the internal gears of the replacement gearbox began failing repeatedly, causing significant disruptions to DHIL's operations and productivity. The situation demanded a permanent solution which was eventually found through collaboration with SEW-EURODRIVE.

### Why SEW?

Hindalco Dahej had a long-standing and trouble-free experience with SEW products. They had been using SEW gearboxes for over 15 years (including two gearboxes in a similar application since 2004) without any

quality or reliability issues. This successful history convinced Hindalco to finally reach out to SEW to find a permanent solution for the hoist failure in the crane.

### Challenges and Solution

Access to the hoist gearbox of the crane was limited, but with the support of Hindalco, the SEW service team managed to access the gearbox. They meticulously studied all details, including mounting dimensions within the confined work space. One major task for SEW was to address the heavy vibrations in the gearbox. Following the careful analysis and detailed technical discussion with Hindalco, SEW proposed a customized helical gearbox with a fabricated housing and splined low speed shaft (LSS). This solution proved ideal for the hoist. Once implemented, it provided a permanent and effective fix for the crane, ensuring reliable operation.

### Key Benefits

- Reliable operation reduced downtime and increased productivity
- Customized gearbox enabled drop in with minimum modifications saving cost and time
- Spline shaft makes for easy maintenance

### Another Satisfied Customer

Since 2021, SEW-EURODRIVE's customized helical gearbox solution has been running smoothly without any issues. This success story prompted the Hindalco team to also retrofit the other gearbox for the crane's grab opening and closing application with an SEW product, reaffirming their trust in SEW's solutions.



### Technical Specifications

Gearbox type	M3PSF90E-894 (Helical)
Gear ratio	27.24
Input power	304 kW
Operating torque	88.91 kNm
Special shaft	Spline output shaft as per DIN 5480
Special housing	Steel welded

“We have used SEW make Gear Boxes since last 25 years. Quality & Reliability is good. Their response time is also good.”

Hemang Soni - DGM- Engg. Product Vertical - Birla Copper, Hindalco Industries Ltd.

# SEW's P2.e Planetary Gear Units: Compact, powerful, reliable solution for diverse industries

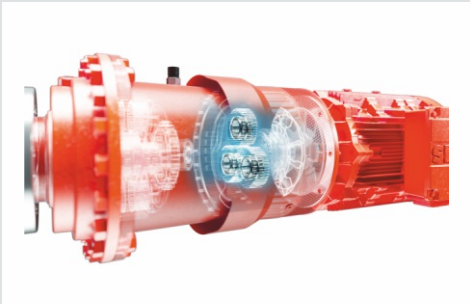
SEW's planetary gear unit range empowers customers to integrate gear units in small spaces without compromising desired torque and speed.

The P series has expanded to P2.e, covering gear ratio ranges from 15.2 to 332 and torque from 24.8 kNm to 124 kNm, achieved through the inclusion of coaxial planetary gear units.

### Characteristics of P2.e

**Enduring Reliability**

The new direct bearing concept conserves installation space efficiently. Full-complement cylindrical roller bearings without outer rings allow for smaller gear ratios in the preliminary planetary stages, providing both compactness and long bearing service life.



**Versatile Integration**

P2.e planetary units can function as standalone gearboxes or geared motors. When configured as planetary geared motor, SEW-EURODRIVE motors can be directly mounted onto the planetary gear unit, offering finely graduated performance and torque classes, along with options like encoders and brakes.

**Higher Thermal Ratings**

Combining a compact design with high torque density, the P2.e series optimizes thermal properties through an integrated fan. This ensures optimal cooling, allowing the system to handle higher continuous power, achieving best-in-class thermal limit ratings and exceptional power density.

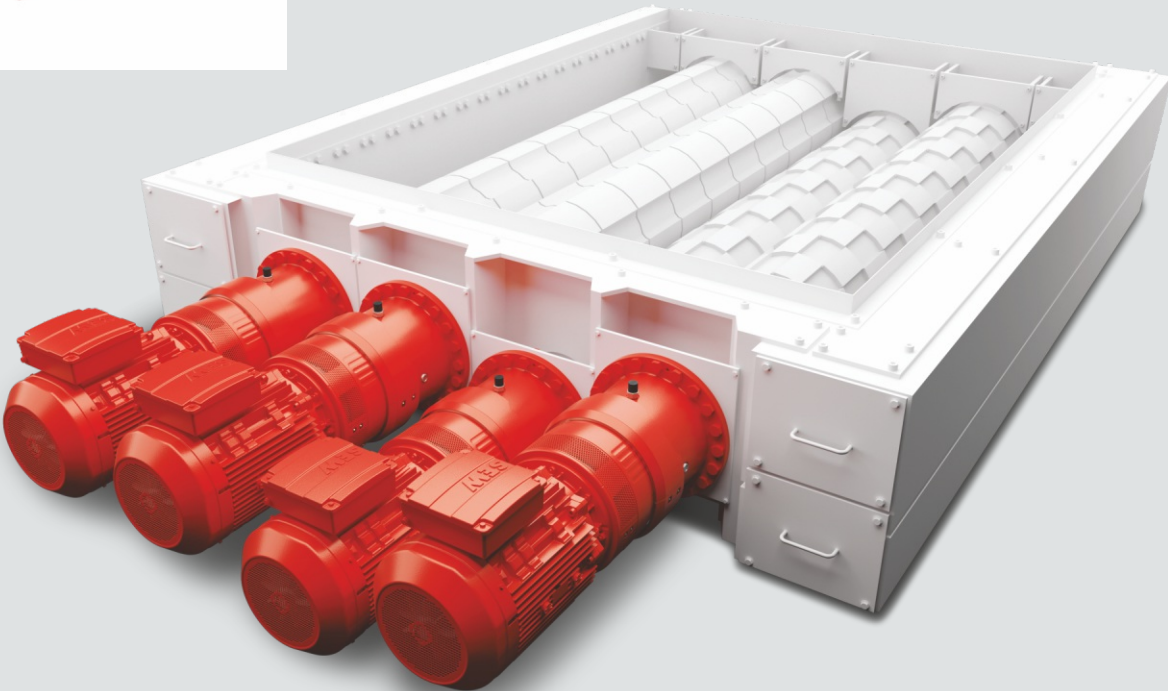
**Simple Machine Connection**

A broad range of output shaft options, such as solid shafts, spline shafts, and hollow shafts with shrink disks or splines, along with versatile mounting positions like foot, flange, and torque arm, provides ample adaptability for the customer.

### Technical Specifications

Planetary gear unit type	Stages	Gear ratio i	Nominal torque M <sub>N2</sub>
P2P.002e – 052e	2	15.2 – 39.2	24.8 – 124 kNm
P3P.002e – 052e	3	51.7 – 332	24.8 – 124 kNm

Industry	Applications
Cement	Ring pan mixers, clinker crushers
Logistics/materials handling technology	Screw conveyor
Recycling	Recycling shredder
Food industry	Horizontal mixers, screw presses
Paper industry	Screw presses







## Designing spaces that are both functional and stylish

Drive India had a freewheeling conversation with Vineeta Badawe, the architect behind all three of SEW's assembly plants, about her long association with SEW, her design philosophy, green buildings and more. Read the full interview below for some interesting insights.

### Firstly, could you give a brief background about yourself?

I am an Architect with degrees in Architecture both from India and Denmark. I started my professional practice in 2002 as a Furniture designer for a Danish Fund for developing countries.

There are very few women Architects who work on Industrial Projects- it being considered a bit 'dull'. But I have no such complaints. Industrial design is a luxury of sorts since clients usually have larger plots and it allows for more greenery and design innovation.

### How would you describe your design philosophy?

I do not have any specific philosophy. I pay attention to what the clients aspire for and also the climate and context. All my projects are Green buildings and we make a lot of detailed drawings. I believe a project turns out better if all 3 aspects- Civil/Architecture, Interior Design and Landscaping are handled by the same designer. If we are to talk about 'isms' then I would go for 'minimalism'.

### Please tell us about your association with SEW.

It is an interesting story. Once I returned from an inauguration of a project and there was a handsome stranger waiting in my room. He had come unannounced. It was Abraham- CEO of a large MNC. For the 'uninitiated' it is very rare that CEOs of companies visit Architects in their offices, it is always the other way around. Abraham said that they have land in Chennai and he would like me to

take part in the design competition, with 3 or 4 other firms. We won the competition and got associated with SEW. The journey has been rewarding and I have enjoyed and loved every SEW building.

### What sets SEW apart from other clients you have worked with?

SEW gives us independence to design and explore. We always submit 3 concepts which are sometimes radically different from each other. But once a concept is approved then there is freedom within that framework. This is quite different from other clients.

The other difference is that there are no 'committees' in SEW to take the various decisions. It is usually one man. It is simple and uncomplicated way of working and gives good work environment.

### How do you approach any new design brief?

I consider the orientation and context. I make sure that all usually occupied spaces have natural light and external garden views. I try to have a 'WOW' factor in terms of massing, material selection, or entrance foyers- people should not forget the project once they have visited. There is also inspiration drawn from the company's business, colours, branding and philosophy. For e.g, Titan's innovation centre in Hosur is a tree house.

### The 3 SEW assembly plants you have designed all seem to look quite different and distinct from each other. What unites them and what sets them apart?

I appreciate this comment. If it all looks the same then it will be monotonous and boring!

Each space, land area, climate is different. So a conscious attempt is made for all plants to have a different feel.

What unites them is the day lighting, extensive landscaping, use of ellipse as a form, courtyards, brick walls and the fish pond - maybe!

### How do you incorporate "green concepts" into your designs?

The must-haves are solar power, cavity walls to reduce heat permeability, natural materials, local tree species, more floor height, and less concrete. A real environment conscious design is the one which will use passive means of cooling, use of mud blocks, only natural ventilation, etc.

### What are some emerging trends in design and construction that you are personally excited about?

I saw the new Bangalore airport- it is quite different from other airports. They have used somber lighting, indoor forests, bamboo and wood. There are international research projects to build skyscrapers with wooden structures. Then there are passive cooling techniques with wind towers, underground tunnels, and water walls.

### Which is your favourite Indian city and why?

Ahmedabad- it has always been an inspiration for Architects. Initially because of Le Corbusier, B V Doshi and then the Sabarmati Ashram by Charles Correa designed to bring in Gandhi's simplicity in built form. I like NID as an environmentally conscious open institution.



"I have had my best clients and projects by chance. Like Abraham visiting my office and me being there. TVS group's Paiyanoor project was also by chance – the chairman happened to read my short essay in Business line and gave us India's first platinum rated project to design. So I believe in luck- since I am not good at marketing or networking"



DTC at Chennai, India



DTC at Pune, India



DTC at NCR, India