



Keeping track of PV progress

New technology is coming through all the time in the field of solar tracking, so we were fascinated to hear from Mario Eckl, Chief Executive Officer and Co-Founder of IDEEMATEC, a company that has over 50 approved patents, about their latest ideas and innovations to help the sector flourish.

PES: A warm welcome to PES Solar, Mario. I'm looking forward to learning more about IDEEMATEC today. Firstly, could you give a brief background to the company and where you fit in the world of solar?

Mario Eckl: IDEEMATEC is a leading international PV tracker manufacturer, headquartered in Germany. Founded in 2003, we first entered the German and European markets with rooftop and fixed tilt solutions. After successfully positioning IDEEMATEC in the market, the company has consistently focused on the development of single-axis solar trackers and was the first mover with 2P design and patented decoupled drive technology.

Increased demand for PV tracking solutions, especially in the sun-belt region, transformed our private company very quickly into an international one, offering the highest level of quality.

Since 2017, we have concentrated on being a tracker provider, with our core business centered around power plant solutions. An investment by ABN Amro in 2019 made it possible for us to expand our track record to 4 GW in a very short time.

Our German-engineered trackers are the most innovative on the market, and our technology has been proven worldwide.

PES: Am I correct in saying that you currently have over 50 approved patents?

ME: That's right. In fact, IDEEMATEC has an outstanding track record that is unique in terms of quality and functionality. The basis for this is definitely the patented product properties, which guarantee unique

advantages for our customers.

This is one of the reasons we are now listed in the Top 10 tracker suppliers worldwide and hold a significant market share on four continents, especially in the large-scale PV plant sector.

PES: Can you explain a little about your core patent, the Decoupled Drive Technology?

ME: We call our Decoupled Drive Technology (DDT) 'our heart', because our entire tracker portfolio has been powered by this technology for over 10 years now. So, we have lots of experience, combined with our pioneering technology.

The DCD technology leverages three key factors compared to others. These are transfer loads, transform loads and transmission of loads. On one hand, this characteristic enables us to build the longest and most flexible trackers in the world, on the other hand, we achieve significantly higher natural frequencies while using even less material!

It combines all the benefits of solar tracking with the structural stability of a fixed-tilt system and is available in 1P and 2P variations. Dynamic instability is the leading cause of weather damage in solar tracking systems, and DCD eliminates this hazard. The locked drive ensures that torsional galloping does not occur in high-wind situations, and the system remains secure.

With the tracking system secured in a locked position, dynamic loads are transferred into the foundation posts. This smart drive transmission eliminates all regular stresses on the gearbox. In other tracking systems,

modules are mounted directly onto the drive tube, which means that these systems are constantly bearing the stress of movement.

IDEEMATEC removes this concern, securing a longer-term return on investment due to improved uptime and reduced maintenance cost. Up to four times fewer motors are required when compared to competing tracking products.

PES: It's built on a zero stow strategy, correct? Does this help reduce wind related impact which can damage tracking systems?

ME: Yes, that's correct. Our systems are developed for a safe zero degree stow strategy, which has already been tested and verified by numerous wind studies, most recently through wind tunnel tests with CPP Wind Engineering Consultants.

PES: Presumably, this reduces the amount of stress on the tracker and modules over their lifetime too, maximizing efficiency and helping to keep maintenance issues low?

ME: Tracking systems are being confronted with increasing loads, due to the increase of extreme weather situations and increasing module sizes. Our focus, therefore, is always on solutions that increase the lifespan of PV plants, while simultaneously reducing velocity pressure. Our L:TEC locked tube technology trackers achieve outstanding aerodynamic instability. In essence, this allows us to have the stow position at zero degrees.

The zero degree stow position of the tracker

reduces the wind pressure significantly so lifetime stress on the tracker and modules is significantly decreased. IDEEMATEC trackers are safely stowed at all times during high winds. That is why we have zero wind claims.

PES: Innovation in product design is obviously an important focus, but you also support customers from planning through to commissioning and beyond, is that right?

ME: Over 15 years of experience in the tracker business enables us to provide planning of outstanding quality. We use our own in-house 3D planning software solution for project-specific adaptation and integration of a complete, and largely interface-free, solution including foundations. Service is our strength. For example, our project in Qatar was completed even faster than originally planned, despite the extremely difficult conditions during the Coronavirus pandemic and entirely digitally commissioned.

PES: Does that mean you support all locations worldwide, or are there particular markets you cover?

ME: We cover all kinds of project conditions. We provide strong regional support and local production in our priority markets with branch offices in Europe, North America, MENA, Australia, China, South Africa and LATAM.

Our products can be adapted to suit any landscape and to withstand any climate conditions. All of these factors are taken into consideration at the planning stages so that



Mario Eckl

we design the most efficient project for any given location.

PES: It would be great to hear about any real-world examples of your solutions being used in practice if you can share one or two examples?

ME: My personal favorites are Qatar and Baynouna, Jordan. At 800 MW, the system in Qatar is the largest two-in-portrait site in the world. It has already been commissioned and is currently being connected to the grid. The site poses some unique challenges, with the terrain being extremely flat.





Baynouna in Jordan provides contrast to this, as one of the hilliest utility scale tracker projects worldwide. This 248 MW site uses IDEEMATEC SafeTrack Horizon H4 trackers and has been in operation since 2019.

PES: How important is sustainability in the production of these new solutions and systems as they come to market?

ME: Being a provider of products in the renewables industry is simply not enough for us. Companies need to be conscious of all of their practices, from supply chain efficiencies to system longevity. Reducing CO₂ emissions is a responsibility that we have to live up to, there is no question about that. The challenge is to optimize both the product related CO₂ impact and the LCoE of solar power plants.

PES: How is IDEEMATEC addressing this issue?

ME: We are addressing this with ongoing certification in line with the ISO 14001 Environmental management system. The standard incorporates the selection of location and methods of production. Certification according to the DIN EN ISO 14001 environmental standard helps us to send a strong signal and shows that we value the responsible use of natural resources.

The international ISO 14001 standard defines prerequisites for an environmental management system. It gives us the opportunity to underline our commitment to

the responsible use of natural resources.

For us, this leads to a number of key benefits, in addition to being environmentally responsible. Local production reduces our carbon footprint, but also means that we can manufacture to specific project requirements and support with the coordination of logistics. Our design, which combines decoupled drive technology and a zero degree stow position leads to superior stability and safety, for both trackers and modules, with even less materials required in manufacturing.

PES: As a company that is continually innovating, you must always have one eye on what the future is likely to look like for the solar industry. What are your predictions?

ME: The world is rapidly changing; we all see and feel the impact of this. Topics such as climate change are coming to the fore and will continue to dominate the news cycle. Governments will have no choice but to take more concerted action.

That means that renewable energy will become even more important than before. Investments in solar energy will become more commonplace, and an extremely worthwhile venture. More decision-makers will come to the realization that the sun is free and running costs are marginal. This creates greater energy independence.

Security of supply is also something that will

continue to grow in importance over the coming years. We have seen in recent months that over-reliance on other countries for energy supply can pose problems for continuity of supply, and solar will also be a key part of this solution for governments worldwide.

PES: And for IDEEMATEC in particular, are there new ideas in production that you can reveal, or will we have to wait and see?

ME: With the expansion of our Horizon L:TEC® tracker range, we are the only tracker supplier using one specific technology to implement both 1P and 2P systems, and we have also launched an adaptation for Agri PV. That is another milestone in the industry and we've received lots of great feedback from our customers on the depth of our offering.

We have recently been involved with a 5.5 hectare Agri PV research facility, Sonnenfeld Bruck an der Leitha, in Austria with EWS Consulting. This aims to offer greater insight into the best solutions for a sustainable approach and we'll have lots of insights to share over the next three years of testing.

We are led by innovation and customer-oriented, so there are lots of other projects that we are working on in the background. Hopefully we won't have to wait long until I can share some more great news. Watch this space.

www.ideematec.com