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Linde Material Handling

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LINDE MH TRUCK IN UAE

Elevating the future with Linde truck: Linde E16 framed by the iconic Dubai skyline.

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LINDE HYDROGEN FACILITY

Linde Material Handling implements lighthouse hydrogen project.

LINDE MH'S ASCHAFFENBURG plant now producing green hydrogen for its in-house material flow . It is a pilot project that is unparalleled in this industry in Germany and even throughout Europe. The new hydrogen production facility and vehicles were officially put into operation at the Aschaffenburg site. The investment is being funded by the German Federal Ministry of Digital Affairs and Transport (BMDV), coordinated by NOW GmbH and implemented by Project Management Jülich (PtJ). The goal is to gain experience and build up expertise in order to be able to provide customers with comprehensive advice and support on the use of hydrogen in material flow processes.

THE TOPIC OF energy is emerging as one of the major challenges of this decade and beyond," Stefan Prokosch, Senior Vice President Brand Management Linde Material Handling, said at the inauguration ceremony. "In our search for potential solutions, we identified hydrogen as an option in the energy mix of the future." photovoltaics or wind power. "We want to have the entire range of energy supply options in our portfolio so as to be able to offer our customers the best possible solution for their specific needs. With this strategy, we will also be able to remain flexible and open to different developments. After all, no one knows exactly where this journey will actually end up," explained the top brand manager.

Using its own infrastructure, Linde Material Handling is now producing green hydrogen at its Aschaffenburg site to supply energy to 21 fuel cell forklifts of its in-house fleet.

He pointed out that this applied especially to applications in intralogistics, because, in addition to potential climate neutrality, the rapid refueling of industrial trucks with hydrogen during intensive multi-shift operations posed a major advantage. "A three-minute refueling time corresponds to a comparable charging power of about 480 kW," he explained. In addition, the energy carrier could act as an energy store with the increased use of renewable energy sources in the future, for example to temporarily store electricity generated by means of

DEMONSTRATING COURAGE, BREAKING NEW GROUND.

Around 2.8 million euros have been invested in the planning and construction of the hydrogen infrastructure. The hydrogen production facility was built within a period of eleven months on a 280-square-meter area conveniently positioned within the manufacturing and assembly plant. Around 50 subcontractors were involved in building the hydrogen infrastructure under the direction of general contractor Covalion, a Framatome brand, and Linde Material Handling's construction department.

LEFT
The production facility was built within a period of eleven months on a 280-square-meter area that is conveniently positioned within the manufacturing and assembly plant in Aschaffenburg.

"With the commissioning of the facility and forklifts, we ourselves are becoming hydrogen producers and users and will thus be able to further expand our technological expertise. This will eventually also benefit our customers because the experience we gain in planning, building and operating the plant and using the fuel cell forklifts will be passed on to them as part of future material flow projects," stated Prokosch. At the same time, the decentralized on-site hydrogen infrastructure will serve as a showcase for other interested groups. "We will be demonstrating how the use of renewable energy sources can work in practice," the brand manager added.

Kurt-Christoph von Knobelsdorff, CEO and spokesman of NOW GmbH: "Lighthouse projects like this one undertaken by Linde Material Handling are of great importance for the further ramp-up of hydrogen and fuel cell technology. They demonstrate what is already possible in the area of intralogistics and they make it clear that the transformation towards climate neutrality has gained momentum in the non-road sector as well. Companies that are leading the way in this regard and sharing their experience in networks such as the Clean Intralogistics Net are already benefiting today, ensuring their success far beyond tomorrow."

Michael Kraus, project manager at Framatome (Covalion): "The project was a challenge, as well as an opportunity to demonstrate our skills and expertise. Planning the project and building the facility took a total of about three years – and we were able to accompany Linde Material Handling from our very first meeting to the approval process and the first fueling of the industrial trucks. We worked closely with the project management team to meet the specific individual requirements of the project and find the best possible solution."

STATE-OF-THE-ART TECHNOLOGY IN INCONSPICUOUS CONTAINERS

The components of the hydrogen infrastructure comprise several modules. The centerpiece is a PEM (polymer electrolyte membrane) electrolyzer, which is set to produce 50 kg of hydrogen per day. Here, purified and deionized drinking water is separated into oxygen and hydrogen with the help of green electricity. In another container, the hydrogen is gradually compressed to 450 bar and then fed into high-pressure storage tanks via piping and valves. A software-controlled valve system regulates the supply line to the dispenser, the gas pump. Here, employees can connect their vehicles in just a few simple steps. The refueling process is completed within just a short time. The high-pressure storage tank is designed to store up to 120 kg of hydrogen at 450 bar so that even peak demand caused by increased refueling processes at shift changes can be covered.

A total of 21 electric counterbalanced trucks with fuel cell hybrid systems, which comprise twelve Linde E50s with a load capacity of five tons and nine Linde E35s with 3.5 tons load capacity, replaced the previously used IC models. As part of the plant fleet, they are used for loading and unloading trucks and supplying the assembly lines with large and heavy components such as counterweights, pre-assembled frames or driver cabs, among other things. "The vehicles do not produce any emissions during operation," Prokosch emphasizes. Hydrogen and oxygen in the ambient air react in the industrial trucks' fuel cell system. The electrical energy generated charges a lithium-ion battery that powers the forklift; water and heat result as the only "byproducts".

The generation and use of hydrogen takes place directly where intralogistics operations are carried out. In addition to Linde forklifts, other technical solutions offered by the company are used as well. For example, the explosion-proof access control system of the Linde:connect fleet management solution ensures that only authorized and trained persons can use the hydrogen facility. Furthermore, the explosion-proof "Safety Guard" assistance solution at the dispenser and in the vehicles automatically reduces the driving speed in the vicinity of the filling station. Last, but not least, the "Linde Energy Manager" solution enables the intelligent planning and control of energy demands throughout the site, thus avoiding power load peaks and allowing for cost optimization.

HYDROGEN TECHNOLOGY MADE BY LINDE MH

Linde MH is considered one of the pioneers in the use of hydrogen in intralogistics, having developed the first fully operational prototype forklift with fuel cell drive as early as 2000. Since 2010, fuel cell forklifts have been integrated into the company's series production, and as of today, 80 percent of the series, including counterbalanced forklifts, tow tractors and pallet stackers, can be ordered with this energy option as a "customized solution" with hydrogen drive. In numerous studies and projects, Linde MH and its partners from industry and science have demonstrated the conditions under which fuel cell forklifts are marketable and economical today. This is the case especially if a hydrogen infrastructure is already available on site or if highly pure hydrogen is produced as a waste product in the operational process. Fuel cell forklifts are also suitable for multi-shift operation entailing intensive use and a high number of annual operating hours indoors, or where there is limited space for charging or battery changing facilities, which are ultimately intended to be eliminated.

Along with the construction of Linde MH's hydrogen infrastructure in Aschaffenburg, parent company KION GROUP AG is pressing ahead with the development and production of its own fuel cell systems. At the LogiMAT trade fair, Linde MH presented its first own 24-volt system for warehouse equipment, which was developed at the Aschaffenburg site. An approved funding decision has already been received for the development of a 48-volt fuel cell system, and the team is working on rapid implementation. "By bringing the development of fuel cell systems and lithium-ion batteries in-house, we will also have the opportunity in the future to design our own fully integrated fuel cell hybrid systems that are precisely tailored to the requirements of material handling equipment," outlined Prokosch.

LINDE T16P TO T20P

A versatile, compact pallet truck with foldable operator platform from Linde MH

Efficient entry-level models for transport as well as loading and unloading operations

WITH THE LINDE T16 P to T20 P models, Linde Material Handling (MH) launched two new compact pallet trucks with a foldable operator platform. Offering 1.6 and 2.0 tons load capacity, respectively, and a width of just 720 millimeters, the vehicles are designed for use in a wide range of applications and are ideally suited for working in confined spaces. Thanks to speeds of up to 8.5 km/h, gradeability of up to 20 percent, and new comfort and safety features, they enable efficient fast transportation of goods over short and medium distances as well as loading and unloading operations. The pallet trucks are available with a choice of either lead-acid or the latest generation of lithium-ion batteries. Fleet management and connectivity ensure productive operation and effective service.

"Confined spaces present a particular challenge when it comes to loading and unloading trucks as well as in adjacent goods distribution areas," says Peter Klug, Product Manager Warehouse Technology Germany at Linde MH. "When operating between closely-spaced pallets on the truck loading area or along unclear routes through cargo handling zones, drivers need to have their equipment one hundred percent under control. Accordingly, they appreciate compact, ergonomic vehicles that enable them to work safely and quickly," explains Klug. With the Linde T16 P and the Linde T20 P, there are now two newly developed vehicles available for the fast movement of goods at the truck ramp and over short to medium transport distances. "The foldable platform allows employees to drive the truck, which saves time and energy. Wherever pallets must be maneuvered with centimeter precision, the platform and side bars can be folded back up in no time at all," explains the product manager. In the Linde portfolio, the Linde T16 P and T20 P models are the link between pedestrian-only vehicles and the recently introduced, high-performance models with foldable or fixed stand-on platform: Their performance is designed to meet the requirements of light to medium-duty applications, while at the same time featuring premium comfort and safety equipment. Additionally, the new trucks are available with various energy options and state-of-the-art on-board electronics and connectivity equipment.

CUSTOMIZED FOR SPECIFIC APPLICATIONS

The 1.3 kW three-phase AC motor accelerates the vehicles to a maximum speed of 8.5 km/h; however, speed limits can also be set via various parameters. In difficult situations, the automatic booster effect provides higher torque when additional power is needed, e.g. when driving out of a pothole or pulling out a foil-wrapped pallet that is stuck in the truck. On slopes, the pallet trucks have plenty of reserve under their non-deformable engine hood thanks to gradeability of 15 percent (Linde T16 P) and 13 percent (Linde T20 P) when loaded, and 20 percent when unloaded. Furthermore, the electric steering system allows smooth and precise control even under full load, while the five-point contact configuration with a centered drive wheel and sprung castor wheels keeps the unit stable during transport. Optional integrated onboard chargers free drivers from having to rely on fixed charging stations.

INCREASED COMFORT & SAFETY

Additionally, the trucks offer further optimizations with regard to safety and comfort. The sideguards, which keep the operator safely within the chassis contours, are more robustly designed and padded on the new models. The special Linde tiller head now has an activation angle of 65°, which is convenient for drivers with shorter stature. The stand-on platform has been enlarged to 663 millimeters and, with a height of 162 millimeters, allows easy access for the driver. Suspended and made of non-slip rubber, it also dampens vibrations and shocks, thus creating the basis for fatigue-free working. A new option is the metal accessory bar, to which work lights, scanners or the Linde Blue Spot can be attached. Another equipment option is the load guard which prevents the load from sliding toward the operator.

LINDE MEA EVENTS

GULFOOD MANUFACTURING

Linde Material Material Handling and Dematic: A Dynamic Duo at Gulfood 2023

GULFOOD MANUFACTURING IS a major food and beverage processing industry event held annually in Dubai, every month of November. It serves as a platform for industry professionals, companies, and experts to come together, showcase innovations, discuss emerging trends, and explore business opportunities within the food manufacturing sector.

Linde Material Handling and Dematic took center stage at the Gulfood 2023 exhibition held in Dubai. The event was held from November 7 - 9 and witnessed an impressive convergence of cutting edge technology and industry expertise.

The collaborative booth attracted diverse audience of over 352 industry professionals and enthusiasts from 52 countries, with a notable presence from the UAE and KSA.

Visitors learned advanced material handling solutions and logistics automation, and how it could boost efficiency and sustainability in their operations. Feedback from visitors was overwhelmingly positive. The event not only marked a significant moment for Linde Material Handling and Dematic but also set the stage for continued advancements and transformative partnerships in the years to come.

LEFT
Linde MH and Dematic team starting the event

TOP RIGHT
Linde MH team ready to welcome visitors

BOTTOM
Linde MH and Dematic team and Mohammad from Alkhorayef, KSA

A very productive and busy 3 day event with our visitors from all over the world. Special thanks to our dealer network partners: Al-Futtaim FAMCO, UAE and Alkhorayef, KSA for their support during the exhibition.

The event covers various aspects of the food and beverage production chain, including processing, packaging, ingredients, and logistics. It attracts exhibitors and attendees from around the world, making it a global gathering for everyone involved in the manufacturing industry.

SRM OPEN DAY

SRM IN CASABLANCA, Morocco recently organized a highly successful Open Day last November 23, focusing on stock trucks for both existing customers and potential buyers. There were 30 customers that were invited to attend the Open Day. The exclusive event offered customers first-hand access to showcased stock trucks and insights into Linde solutions, including lithium-ion technology, the connect system, and automation.

SRM Casablanca's Premium Open Day showcased an innovative approach to presenting stock trucks and engaging with customers. The integration of QR codes for accessing pricing and truck specifications reflects a commitment to customer satisfaction and a forward-thinking approach to the material handling business. The event's success positions SRM Casablanca as a leader in providing not just quality vehicles but also cutting-edge solutions for its clientele in Morocco and beyond.

The SRM Open Day received positive feedback from all customers. The combination of an extensive truck lineup, interactive QR code system created a memorable and efficient experience for all attendees.

TOP LEFT
SRM Morocco Sales Team with Toufik from Linde MH

TOP RIGHT & MIDDLE
Presentation of the service department

BOTTOM
Presentation of the Linde Range to the customers

LEFT AND RIGHT
The outdoor setting added a dynamic touch to the event, ensuring a pleasant and engaging experience for all attendees.

The event featured an innovative system allowing attendees to access pricing and specifications instantly by scanning QR codes.

WAREHOUSE SOLUTIONS SEMINAR

We are happy to have had the opportunity to take part in the Warehouse Solutions Seminar at Intercol, Bahrain with Rafik Samy representing Linde MH. It allowed us to engage directly with our customers, discuss our products and solutions, and gain a deeper understanding of their warehouse needs.

TEN THINGS TO LEARN ABOUT BISEDGE

In the dynamic field of Nigeria's logistics sector, Bisedge stands out as a formidable force. Established in 2017, the company has swiftly become a key player, specializing in electric forklifts and representing Linde Material Handling (Linde MH) as its exclusive partner in Nigeria. We had the opportunity to interview Klaus Zimmerman, the CEO of Bisedge, to delve into the company's journey, challenges, and vision for the future.

Mr. Klaus Zimmerman
CEO Bisedge

01 Tell us about Bisedge? Bisedge is a leading player in the logistics sector in Nigeria. Established in 2017 and serving as the exclusive partner of Linde Material Handling (Linde MH) in Nigeria, we have swiftly become a key partner for multinationals and local companies in the food and beverage sector.

Our primary focus is on electric forklifts, aligning with our commitment to reducing greenhouse gases and improving efficiency through innovation. Our flagship service is based on a "Product-as-a-Service" model, allowing our clients to outsource their full material handling needs, including forklift leasing, skilled operators, maintenance, and fleet management. We also offer sales and after-sales maintenance of Linde equipment.

In summary, Bisedge is driving positive change in Nigeria's logistics industry, offering tailored solutions to enhance efficiency and environmental responsibility for businesses.

02 When did you start the partnership with Linde? What inspired you to choose this path in business?
We launched our partnership with Linde in 2019, recognizing Linde's global leadership in material handling technology. The decision to partner with Linde was inspired by their reputation for quality and innovation which aligns perfectly with our vision for Bisedge.

03 Who are your main competitors in the country?
Our main competitors in Nigeria are companies that are affiliated with other well-known brands like Toyota, TCM and Caterpillar. In recent times, we have also seen an influx of other less established brands due to their cost advantage. However, our unique service offering and impeccable after-sales services helps us to stay ahead of competition.

05 What have been the biggest challenges you've faced and how did you overcome/ or plan to overcome such challenges?
One of the biggest challenges we have faced has been dealing with the local currency devaluations. In many developing markets, including Nigeria, the local currency can be quite volatile and could have significant impact on operating costs. To mitigate this challenge, we offer our customers dynamic pricing that takes cognizance of the currency fluctuation in a transparent mechanism that is beneficial to both parties.

By remaining flexible to currency challenges and working closely with our clients, we are able to successfully manage these volatilities and stay on top of these challenges.

06 How do you see the changes in the Nigeria market in the next few years when it comes to material handling automation?
We expect there will be a gradual entry of automated guided vehicles (AGVs) into the Nigerian market in the next 2-3 years, but there is a long way to go before the market can fully accept these equipment. This is because the cost of AGVs are considerably high and labour for manually driven MHEs are readily available and inexpensive.

07 Where is your business heading/ goal for the company/ focus this year?
We want to continue to grow with existing and new customers targeting a 50% market share at the end of the year. We also want to expand our operations to new frontiers, starting with Tanzania and Kenya.

04 What do you think is the the biggest strength of your company?
Our greatest strength is our people, and they are the backbone to our success. We have a team of dedicated professionals who work assiduously to increase our footprint locally and internationally. We place a strong emphasis on continuous improvement by investing in extensive training opportunities, to ensure that our workforce remains at the forefront of industry knowledge and expertise. We also have a special focus on gender diversity, and we have been recognized in the past by UNIDO for our work in empowering women in the logistics sector.

08 What's the best thing to happen since you started partnership with Linde? How do you see the future of Linde/ Bisedge partnership? One of the most exciting developments since we started working together is the rapid growth we have experienced. With the support of Linde, we have been able to expand our footprint not only in Nigeria but also in other key African markets. This move aligns perfectly with our vision to provide world-class material handling solutions that can be scalable.

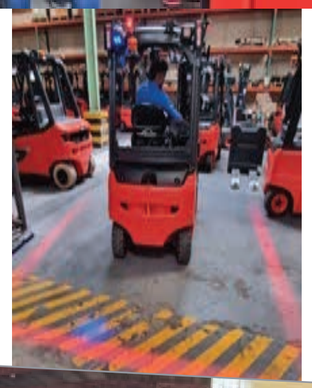
09 What do you wish other people knew about Linde? We wish people knew more about the innovative technology in Linde's equipment. Linde places a strong emphasis on research and development to create innovative and safe solutions for its customers, and this makes them the technology leader in the industry.

10 What would you say some of your strongest beliefs about business management or personal philosophy? Our strongest beliefs at Bisedge are creating an organization that is anchored on an excellent work culture, providing an exciting workplace for our people, putting our clients first, sourcing and creating innovative solutions and striving every day for excellence with the purpose of establishing Bisedge as a leader in electrifying of machinery in the logistics industry in Africa and Middle East.

MEA TRAINING

VNA Truck Commissioning and centralized technical training, organized by the MEA service team, Ali and Benjamin, took place in Bahrain. The main aim was to improve the technical expertise and facilitate the exchange of field experiences among technicians. We thank all participants from various regions, including Bahrain, Jordan, and Oman, for their participation.

A significant service training progress in our region, organized by Abbas such as commissioning training, on-site assistance, and sales development in Ghana, Egypt, UAE, and Saudi Arabia. Topics included ATEX trucks, Lithium-Ion batteries, 39x series, and the ELOKON option for VNA, with the primary goal of enhancing technical expertise, boosting customer satisfaction, and driving business development. Thanks to all the participants from various region.



RCC Training

A successful Residual capacity training was held in Dubai, led by Jakub and Marek. It was nice to see the enthusiastic involvement and positive attitude of the MEA participants, which greatly contributed to the training's success.

Leasing Workshop

The Leasing workshop proved to be an exceptionally intriguing and informative subject for our dealer network from both the Kingdom of Saudi Arabia and Egypt. We thank you for coming and we can't wait to see the progress and implentation of the rental business in MEA region.

Product Training

The product training in Saudi Arabia conducted by Rafik and Smaine was highly productive for all the participants. A total of 12 participants joined the training and we're very happy to see the new and familiar faces learning all about Linde MH products and services.

THANK YOU

Wishing you and your family a Merry Christmas and Happy New Year 2024.

ANOTHER YEAR IS about to come to an end, what a challenging one. In many shrinking markets, competition has never been so aggressive, and CITA players has never been so active within the MEA region. Some of you have also had to navigate a difficult economic or political context and we have seen this throughout the global market.

The entire MEA team acknowledges your amazing fighting spirit to defend our position in each and every deal and your unfailing motivation to promote our RED colour – thank you for this. We are convinced that many of these challenges have made us even stronger and perfectly prepared to regain our position in 2024, supported by ongoing product and service launches, such as our brand new 1289 Series truck, which will be presented next January at our state of the art factory in Jinan, China.

For the time being we wish you a relaxing winter break and a great start to the New Year.

All The Best,

Stéphane Nicoli
Sr. Director Sales & Service MEA Region
KION Industrial Trucks & Services EMEA
(KION ITS EMEA