

Linde Material Handling

Linde

DEVELOPED FURTHER, MADE BETTER.

The powerful counterbalanced forklift trucks from Linde Material Handling





It is of course important to have good visibility in all directions and upwards while manoeuvring. Otherwise it's mayhem!

Katrin Mann, Logistics Specialist, Schoeller Technocell GmbH & Co. KG, Weißenborn, Germany



STRONG COUNTER-BALANCED FORKLIFT TRUCKS ARE VERY IMPORTANT FOR US. AT THE SAME TIME, WE ATTACH GREAT IMPORTANCE TO THE ISSUE OF SUSTAINABILITY.

Frank Lehmann,
Managing Director, Ensinger Mineral-Heilquellen GmbH, Ensingen, Germany



FROM A PROCUREMENT PERSPECTIVE, OF COURSE THE COMMERCIAL VALUATION IS THE DECIDING FACTOR – SUCH AS THE MONTHLY LEASING RATES OR THE TOTAL PURCHASE COST.

Daniel Spangenberg, Procurement,
BOHAI TRIMET Automotive Holding GmbH,
Sömmerda manufacturing site, Germany



For me, it is important that the forklift truck is comfortable. After all, I spend many hours in it. Air conditioning makes sense, lighting is important, as well as all-round visibility and large windows.

Reiner Höss, Driver,
Kalkwerk Rygol GmbH & Co. KG, Painten, Germany



VEHICLE CONTROL VIA JOYSTICK NOT ONLY REDUCES NOTICEABLY THE PHYSICAL STRAIN OF THE OPERATOR – ESPECIALLY WHEN DRIVING FOR SEVERAL HOURS AT A STRETCH, THE ABSENCE OF A STEERING WHEEL ALSO ALLOWS A CONSIDERABLY BETTER VIEW OF THE DRIVEWAY AND LOAD.

Feedback from customer surveys

IF THE FORKLIFT TRUCK IS ABLE TO GENERATE ERROR CODES AND INITIAL DIAGNOSES ITSELF IN THE EVENT OF A FAULT, LENGTHY DOWNTIMES CAN BE AVOIDED. COMBINED WITH REMOTE SERVICING FUNCTIONS, THIS CAN SAVE A LOT OF TIME.

Feedback from customer surveys



When it comes to new equipment such as this, the big issue for us is not just the overall cost, but also work safety.

Daniel Liebst, Foundry Manager, BOHAI TRIMET Automotive Holding GmbH, Sömmerda manufacturing site, Germany



Whereas a few years ago the trucks would be coming through the yard all day, nowadays we have two ninety-minute blocks in which to complete the whole day's delivery. This means every move has to be spot on!

Hubert Maier, Operations Manager,
Kalkwerk Rygol GmbH & Co. KG, Painten, Germany

THE MORE WEAR- AND MAINTENANCE-FREE COMPONENTS ARE INSTALLED, THE BETTER. THIS MAKES THE SERVICE INTERVALS MUCH LONGER.

Feedback from customer surveys



Our forklifts are permanently in use. This means that any scheduled or unscheduled downtime has an acute effect on production.

Christian Schöntag, Head of Maintenance and Site Services,
BOHAI TRIMET Automotive Holding GmbH, Sömmerda manufacturing site, Germany

AN AUTOMATIC PARKING BRAKE IS CRUCIAL, TO ENSURE THAT THE FORKLIFT TRUCK CAN'T JUST ROLL AWAY.

Feedback from customer surveys

INFORMED BY YOUR REQUIREMENTS. PERFECTED BY OUR PERFORMANCE.

E-commerce, just-in-sequence supply of production lines, increasingly digitalised business processes, and globally networked supply chains: in the intralogistics of the 21st century, the demands and requirements are always increasing. If you want to cater for this sort of diversified market with tailor-made solutions, before every development process you have to ask yourself this: Who are we manufacturing for? How does my client think? What do they need today, and what tomorrow? To find answers to these questions, we rely on constant communication with users of all sizes from all sectors. **We listened, analysed, questioned – and ultimately created a range of models which sets new standards across the industry.**



LINDE H20 - H35 AND LINDE H35 - H50

Combustion engine and the unique hydrostatic drive,
with enormous power and superior precision:
for challenging continuous operation in the most
demanding outdoor applications



LINDE E20 - E35 AND E35 - E50

Electric, compact and uniquely agile:
for maximum throughput, even in confined
indoor spaces





**LINDE X20 – X35
AND X35 – X50**

Electric, robust and extremely powerful:
for the toughest multiple-shift applications
outdoors and indoors



OUR MODEL RANGE AT A GLANCE

THE RIGHT FORKLIFT TRUCK FOR THE RIGHT JOB

One technical platform – a wide variety of drive and energy systems: that's exactly what we offer you in the counterbalanced forklift truck segment as the only manufacturer on the market. Our H, X and E forklift trucks open up a wealth of possibilities for you to adapt your equipment selection as precisely as possible to the requirements of your intralogistics.



UNIQUE TRUCK CONCEPT

BUILT FOR THE TOUGHEST REQUIREMENTS

Our latest counterbalanced trucks represent everything that Linde forklift trucks have always stood for – they are extremely powerful, safe, user-friendly, robust and versatile. We have been able to improve every one of these properties now too, either by developing proven features or introducing new components. All in all, this results in a vehicle concept that will provide the best solutions for your material flow requirements both now and in the future. In other words, one Linde standard across all vehicle categories.

OVERHEAD TILT CYLINDER

→ safe and responsive load handling,
even at high lifting heights

LARGE WINDOWS

→ outstanding 360° visibility

LARGE DRIVER'S CAB

→ ample foot, leg and headroom

INNOVATIVE LIGHTING SYSTEMS

→ increased safety for people, goods and
infrastructure

**DECOUPLED MAST,
DRIVE AND STEERING AXLE**

→ protects against impacts and vibrations

WIDE STEP

→ easy and safe entry
and exit

ROBUST CRASH PROTECTION

→ best possible protection against
collision damage



PANORAMIC ARMoured GLASS ROOF
→ unrestricted view when working at height

SLIM MAST PROFILES
→ perfect forward view of the driving path

LOWERED FRONT PLATE
→ better view of the fork and the load



COLOUR DISPLAY
→ essential information in the driver's field of vision

LESS IS MORE

VISIBLY SUPERIOR

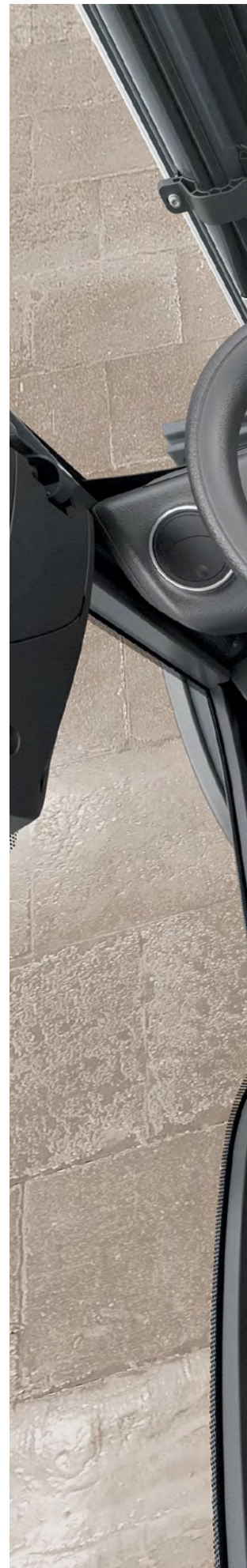
PARTICULARLY NARROW A-PILLAR
→ optimal panoramic view

More visibility, more control, fewer accidents: Thanks to the optimised design of the chassis, cabin and mast, drivers now have an even better view in all directions. The particularly narrow A-pillar gives the driver good visibility of the load and their surroundings. The driving path is also easier to see thanks to the slim mast profiles. The lowered front plate also improves the visibility of the forks and the load. In addition, the optional panoramic armoured glass roof guarantees the best view upwards.

INTERIOR VALUES

WELCOME TO BUSINESS CLASS

Car or commercial truck? You will be amazed by the sophisticated finish of the interior of our counterbalanced forklift trucks. In fact, the functionality, feel and design of the control elements, which are positioned in the immediate vicinity of the driver, are heavily geared towards the standards of the automotive industry. A high-quality work tool for demanding tasks should also have a high-quality feel – after all, the more comfortable the driver is, the greater their appreciation for the forklift truck.





**AIR CONDITIONING* WITH
EIGHT-NOZZLE VENTILATION SYSTEM**

- powerful cooling and heating
- increased comfort for the driver
- * contains fluorinated hydrocarbons

OPTIONAL ROTARY PUSH SWITCH

- simple navigation in the menu
- available in combination with the 7-inch multifunction display

NUMEROUS SEAT VARIANTS

- optimal protection against postural injuries
- minimised physical strain
- best possible reduction of impacts and vibrations

MULTI-FUNCTION ARMREST

- ergonomic operation of all the core functions

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From the cabin to the seat to the control elements, the comfortable **driver's workstation** enables ergonomic, safe and therefore extremely productive working.



Safety 20–25

The highest level of safety in all situations – **numerous active and passive safety features** help to prevent accidents involving people and damage to goods and infrastructure.



Connectivity 26–29

Perfectly equipped to use the potential of digitalisation – thanks to their **advanced system architecture and data transmission unit as standard**, every forklift can be easily integrated into digital processes.



Productivity 30–43

It's all about the right balance – the new generation of counter-balanced forklift trucks boasts **top performance** values along with **low overall costs** throughout the entire service life.



Service

44 – 47

Long service intervals and low servicing costs – the robust design, which is less prone to needing repairs, and numerous wear-free assemblies ensure **low maintenance costs**.



“What do I need from a forklift truck? It should be zippy, as in manoeuvrable, fast – and it has to have good all-round visibility. The forklift should be easy to control in every situation and easy to operate. And I need space! I’m a good two metres tall, so I don’t want to sit for eight hours as if I’m in a chicken crate.”

STEFAN LÜNNEMANN, DRIVER, KALKWERK RYGOL GMBH & CO. KG



Driver's Workstation

THE PERFECT SEAT

What does a good forklift need? There are an infinite number of answers to this question, because different applications have different requirements. That said, there is one point that all users would agree on, no matter what their industry: ultimately, people and technology must work as one harmonious unit. It is only when the right balance is struck between man and machine that we can get the best use out of a forklift truck. We have resolutely followed this proviso with our counterbalanced trucks – and have developed them specifically to meet the needs of the operators: From the spacious driver's cabin and the intelligent arrangement of the control elements to the variety of ergonomic seat variants and the best visibility in the market.

Operating Concept

FLEXIBILITY AT THE WHEEL

A forklift truck is not just a tool for transporting things from A to B – above all, it is a workstation. Therefore, when arranging all the control elements on our counterbalanced trucks, we have made sure that they can be operated perfectly and with minimal physical strain. Every extra movement not only adds unnecessary strain, but also costs time! Left hand, right hand, left foot or right foot: with our operating concept, the driver can use both arms and legs to control a specific function of the forklift truck – as ergonomically as possible.



CUSTOMISABLE OVERHEAD CONSOLE

The buttons for headlights, heating and other functions have been incorporated into the overhead console. A radio with a Bluetooth hands-free system can also be integrated – so the drivers can be reached at any time, no matter where they are in the plant. There are also ten buttons: of these, six can be configured with lighting functions, one with a hazard warning function, and two are freely configurable. It is possible to start several functions at once at the beginning of a shift, simply by configuring the buttons accordingly.



DISPLAY

Tank indicator and remaining journey display, warning lights, operating hours and more: the standard 3.5-inch standard display provides a quick overview of all the important information. There is also the option of a 7-inch multi-function display (see picture), which displays the Linde Safety Pilot or live images from the attached camera systems.

MULTI-FUNCTION ARMREST WITH LINDE LOAD CONTROL

The clear arrangement of the control functions helps to keep necessary movements to a minimum: the operator's right arm rests on the ergonomically shaped armrest. With the help of the Linde Load Control positioned there, the truck's work hydraulics and up to four auxiliary hydraulics can be controlled both easily and precisely. The same applies to the additional pushbuttons, which are available as an option and for which a range of different functions can be assigned by the driver. Of course, users also have the option to adjust the armrest up and down or from side to side to suit their physical requirements.



DECENTRALISED STEERING WHEEL

The driver operates the steering wheel – which is also adjustable – with their left hand. It is small, easy to handle and enables quick and easy manoeuvring. Thanks to its decentralised positioning, the shoulder movements of the left arm are also reduced to a minimum, which helps to prevent unilateral joint wear.

DUAL-PEDAL CONTROL

Whether quickly changing direction, carrying out precise manoeuvres among the racking, or loading trucks from the side: with the proven Linde dual-pedal control, even difficult driving situations can be mastered easily, because both feet remain in constant contact with the pedals, giving the driver direct feedback on the forklift truck's movements.

LINDE STEER CONTROL

It raises user friendliness to a totally new level: thanks to Linde Steer Control, drivers can steer their forklift truck using a mini-wheel or joystick with minimal movements of their left hand – while their lower arm rests comfortably on the extra armrest. A classic steering wheel with a steering column is no longer needed; instead, the revolutionary system is based on steer-by-wire technology where operating commands are converted into electrical signals and passed on to hydraulic control elements. This solution from Linde is unique anywhere on the market and its benefits are immediately obvious.



UNIQUE

→ The Linde Steer Control replaces the classic steering wheel



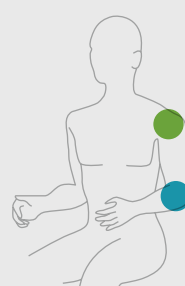
Steer-by-wire The mini-wheel (left) as the standard variant of Linde Steer Control is recommended for all the usual applications of a forklift truck: from transport over longer distances and maneuvering to storage and retrieval. The joystick (right) is particularly impressive in tight spaces.

Reduced physical strain thanks to minimized movements

Linde Steer Control effectively reduces strain on the driver's shoulder and elbow joints – and helps to prevent one-sided strain affecting their steering arm. Employees who spend much of their shift driving the forklift truck will find this revolutionary Linde technology particularly beneficial. Overall, the intuitive operating concept offers ideal conditions for a physical relief and at the same time high efficiency and handling performance.

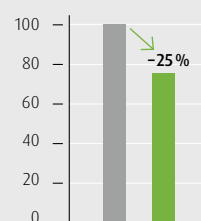
Ergonomics study

The ergonomic advantages of the Linde Steer Control were documented in a user study conducted by Linde Material Handling together with RWTH Aachen University and fka GmbH. For the study, the drivers completed identical courses that included representative driving maneuvers, including driving straight ahead, driving through winding passages, maneuvering in tight spaces, and picking up, parking, and stacking goods. The motion analyses clearly show that the Linde Steer Control requires fewer joint movements of the arm (shoulder, elbow) compared to the conventional steering wheel.

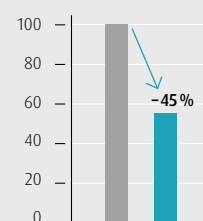


Motion analysis steering wheel vs. Linde Steer Control

Shoulder movements



Elbow movements



■ conventional steering wheel
■ Linde Steer Control – Shoulder
■ Linde Steer Control – Elbow

Ergonomics

PUTTING PEOPLE FIRST

With intelligent solutions and individually adjustable cabin components, we have created an extremely ergonomic workstation. This allows drivers to be comfortable, fatigue-free and therefore efficient in their work. At the same time, the number of health-related absences goes down.



COME ON IN

Depending on their height, getting in and out of the cabin can cause some inconvenience and even hazards for certain drivers, such as if the steps are too high or too low or the handles are too hard to reach. With our counterbalanced forklift trucks, situations like this are a thing of the past: the step is now particularly low with a large surface area, which means also that shorter people can climb on board comfortably, too. Good grip is guaranteed thanks to the perforated, non-slip tread plate and the ergonomically shaped handle, a standard feature which serves as a useful entry aid.

BEST SEATS IN THE HOUSE

The customer is free to choose between the twelve available seat variants, which have been specially developed according to our customers' requirements: all of the seat options ensure comfortable working and active protection against injuries. Even the standard seat has been further optimised to offer even more comfortable, wider padding, along with a lower seat structure, which has the added benefit of creating more headroom. Our star among the top seats:

The Super Comfort Active Seat

- The larger, thicker seat and back padding provide an outstanding level of comfort even during long shifts.
- The combined seat depth adjustment and the fully automatic weight adjustment, in conjunction with the additional height adjustment, ensure that the seat can be adjusted to meet the requirements of any driver.
- The pneumatic dual-action lumbar support can be adapted to the individual needs of the driver.
- The heated seat and active seat ventilation guarantee comfort at any outdoor temperature.
- The optional addition of a fore/aft isolator reduces the strain on the driver – when carrying out excavation work, for example.



HEALTH COMES FIRST

We have made the most of the driver's compartment when it comes to spaciousness and comfort, with a particular focus on providing a generous amount of headroom and legroom. This is not an end in itself, but actively promotes the health, well-being and therefore productivity of the operators. One highlight in this context: the drive and steering axles of all variants – whether H, X or E trucks – are decoupled from the chassis using rubber bearings. In combination with the proven decoupling of the mast and the electronic damping of the ends of the masts, physically taxing shocks and vibrations are no longer transmitted to the drivers. This reduces the risk of health-related downtime – and effectively reduces wear and tear on the mast components.

Comfort

A CABIN WITH A VIEW

Cabin or no cabin: with our counterbalanced forklifts, the excellent visibility conditions are the same regardless. The cabin is not only extremely spacious, but also boasts impressively large windows, which give the driver the sense that they are sitting outdoors.

Facts About Our Cabins

- The height and width of the overhead guard provides ample room to move around.
- The extra-narrow profiles to the front of the overhead guard offer a better view of the driving path.
- Operators now enjoy great head and legroom.
- The standard version of the Linde X20 – X35 fits into most containers. There are special container variants for the Linde E35 – E50 models.



With Cabin

The narrow struts in the side windows do not restrict the driver's panoramic view. Result: visibility is just as good as in the version without a cab.

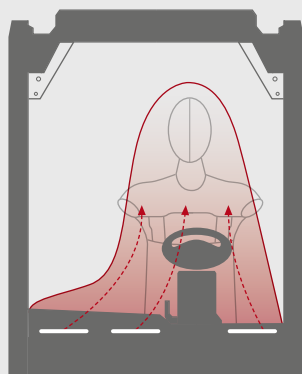


Without Cabin

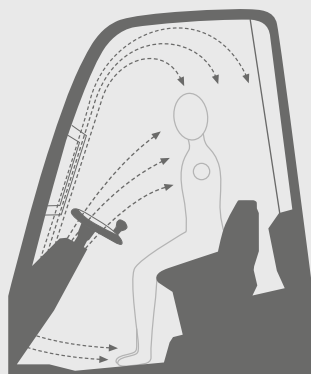
Thanks to numerous design optimisations, the operator has a clear view in all directions.

COMFORTABLE CLIMATE

Weather conditions such as heat and cold can adversely affect the driver's well-being, and therefore also their productivity. For this reason, the optionally available air conditioning system* has been further optimised. The comprehensively revamped heating and cooling system now also features IC-typical performance levels in the electrically powered forklifts.



Optimised air distribution thanks to three fan-type defogging nozzles.



The new shower effect evenly distributes the cold or warm air throughout the cab.

Tangible Added Value

- A total of eight nozzles can heat or cool the cabin to a pleasant working climate in just a few minutes.
- The volume of air flow emitted is now four times higher.
- When clearing the fogged-up windscreen, the first area to be defogged is the driver's relevant field of vision.
- With the "Defog" setting, the air can be dehumidified using the air conditioning.

*contains fluorinated hydrocarbons



“Our goal is to ensure a high level of safety without restricting productivity.

That is why our top priority is not only the constructional safety of our trucks, but also a secure infrastructure. How well can the forklift driver see? Where do the drivers need a good field of vision that must not be blocked by goods? Drivers become distracted by warning devices that beep and flash constantly, or eventually stop paying attention to them. Instead, you need systems that react according to the situation when things get tricky. You need to give the driver a good sense of security so they can work quickly and productively.”

KLAUS ZELLINGER, SAFETY EXPERT, OFFICE FOR OCCUPATIONAL SAFETY





Safety

REST ASSURED

Our counterbalanced forklift trucks demonstrate how we at Linde Material Handling support each of our customers in optimising their safety standards. A well thought-out design, exceptional visibility, numerous passive safety features and a wide range of warning and assistance systems not only make the forklift trucks safer, but ensure they are the safest and most productive in their class by far.

Protecting People and Materials

CERTAINLY BETTER WITH SAFETY

When it comes to safety, nothing should be left to chance. That's why we have been back to the drawing board to ensure that our counterbalanced forklift trucks offer the maximum level of safety. Whether it's the basic structure or design measures to improve visibility, our standard and comprehensive safety approach is "Vision Zero" – we want no accidents to happen at our customers' premises.

RELIABLE CONSTRUCTION

As soon as our trucks leave the plant, the standard of passive safety has already been set high: the low centre of gravity combined with the suspended steering axle significantly reduces the risk of tipping when cornering. The tried-and-tested overhead tilt cylinders, in combination with the torsion-resistant mast construction, not only ensure high residual load capacities, but also ensure safe and sensitive load handling at high lifting heights.

Overhead tilt cylinders: for stable load handling at any height



Patented combi-steering axle: for excellent manoeuvring in the tightest spaces (Linde E20 – E35 and E35 – E50)



Pivoting steering axle (Linde X20 – X35 and X35 – X50, Linde H20 – H35 and H35 – H50)



Asymmetric mast profiles: for better visibility of the load and travel path



Tipping level

Low centre of gravity

Stability triangle

With our counterbalanced trucks, the overall centre of gravity is particularly low and thus close to the tipping level. When cornering, this design reduces the leverage effect of the sideways centrifugal force, making the truck particularly resistant to tipping.

Sturdy cabin construction: for reliable protection in case of emergency





STOPS ERRORS IN THEIR TRACKS

Practical features prevent operator errors from causing serious damage: the optional automatic parking brake, which engages automatically when the driver exits the truck, enables secure stopping on ramps and gradients. In addition, all forklifts are equipped with electronic seatbelt monitoring as standard. For forklifts with a cab, the standard cabin door monitoring ensures that the driver's door is locked properly. If the door is not locked, the driver will also be alerted of this.



CAMERA, ACTION!

Thanks to modern camera systems, the natural field of vision in our counterbalanced forklift trucks can be significantly expanded. In combination with the optional 7-inch multifunction display, three different camera options are available on request: a rear camera films the low-visibility area behind the truck, assisting the driver while reversing. Cameras on the mast and fork help the driver to manoeuvre the truck quickly and safely while storing and retrieving loads on the racks. The operator can configure which side of the display the captured image is shown on, according to their requirements.

AIMING HIGH

The panoramic armoured glass roof provides an unrestricted upwards view. After all, the driver having good visibility of the load and the surroundings is one of the most important aspects of safety – for both people and products.



THE PERFECT PANORAMIC VIEW

Design optimisations, such as making the mast slimmer, the A-pillar narrower and the viewing window between the mast profiles wider, significantly improve the driver's all-round visibility. And one thing's for sure: increased visibility leads to increased safety.



Assistance/warning/lighting systems

SAFELY AT YOUR SERVICE

Whether in halls or in outdoor areas, when handling goods in containers or in truck trailers: our driver assistance systems not only provide the operator with helpful information and make their work more reliable, they can also intervene to regulate operations in the event of a problem. Our numerous warning and lighting solutions also ensure additional safety during load handling.



LINDE CURVE ASSIST

In the warehouse, things often have to be done quickly. But this also increases the risk of accidents – especially when cornering. In order to ensure the safety of the forklift trucks when cornering, we have fitted our new generation of counterbalanced forklift trucks with Linde Curve Assist (LCA) as standard. This intelligent assistance system adjusts the driving speed in proportion to the steering angle, thus guaranteeing the utmost stability and improved productivity.

LINDE LOAD ASSIST

For the driver, it is not always easy to estimate the weight of the current or maximum load, and yet a mistake can quickly lead to dangerous situations for people and goods. To prevent this from happening, the new generation of counterbalanced forklifts is equipped with Linde Load Assist (LLA) as standard: If the load is too far forward, our LLA automatically intervenes in the truck functions and reduces the forward tilt and lifting speed according to the lifting height.



LINDE SAFETY PILOT

Our unique driver assistance system Linde Safety Pilot (LSP) works like an intelligent passenger: at all times, the monitor visualises important parameters such as the centre of gravity of the load, the current load weight and the maximum permitted lifting height – all of which would otherwise not usually be known to the operator. If the driving status of the truck becomes critical, warning colours appear on the monitor and a warning signal sounds. If the driver ignores these warnings, the vehicle controller actively intervenes to regulate the operation and block safety-critical lifting or tilting functions. This enables most tipping accidents to be prevented.



LINDE MOTION DETECTION

The newly developed, optionally available Linde Motion Detection registers movements in the rear of the truck at the moment of reverse start-up (or reversing). If there is a person or another vehicle there – i.e. outside the driver's field of vision – the innovative system prevents the unit from moving.

LINDE SAFETY GUARD

This intelligent assistance system is perfectly suited for use in heavily frequented storage areas: with corresponding receiver units that communicate using modern ultra-broadband technology – even through walls and doors – the system is able to locate other trucks and pedestrians down to the centimetre. As they move toward each other, they begin to vibrate, beep or flash, alerting the individuals in the vicinity. Speed zones can also be defined. In these zones, the system reduces the speed of the vehicle and informs the driver.



TruckSpot™

A particular highlight is the visual warning signal solution TruckSpot™ – the next evolutionary stage of BlueSpot™. Instead of a blue cone of light, the system projects a 1.25-metre, bright warning triangle onto the ground behind the truck for a highly effective and universally understandable warning, which is instantly recognisable to pedestrians and other forklift drivers.

LED flashing/rotating beacon

The battery-powered signal light helps to avoid collisions.

VertiLight™

The anti-glare LEDs, which are arranged in a semi-circular pattern, evenly illuminate the entire area from the floor to the lifting height. Even the smallest details in the operator's working environment are visible, without the need for spot lights.

LED working lights

The vibration-resistant and waterproof working lights provide optimum illumination of the working area with the added bonus of low power consumption.

LED stripes

Thanks to the dynamic circuitry, the LED stripes light up white in the direction of travel, and red in the opposite direction. This gives the driver the best possible visibility and allows other employees to identify which direction the truck is travelling in, even from far away.



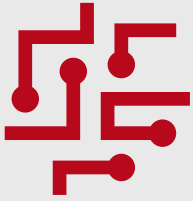


“We develop and distribute, but we don’t manufacture.

With this business model, logistics makes a significant contribution to the success of our business. That’s why, when it comes to processes and costs, I need transparency and planning security: I want to know if I’m getting the best use out of the fleet or when servicing is required. Can this be done without interfering with operations? How much energy does each forklift truck use and what does it cost us? How productive is my team? Ultimately, I want to be in control of what we are spending per item of processed goods.”



BERND GÜRTLER, HEAD OF LOGISTICS, BIG DUTCHMAN INTERNATIONAL GMBH



Connectivity

USING DATA MEANS USING POTENTIAL

The fact is: As a fleet manager, you get sureties for the best possible productivity in your company with counterbalanced forklift trucks from Linde. But it is also a fact that even where there seems to be little room for improvement at first glance, digital solutions can still offer significant potential for increasing availability, operational and cost efficiency. We already provide the basis for this as standard with our trucks: You benefit from a comprehensive sensor system, sophisticated system architecture and a unit for wireless data communication. So that you can get the best for your goods flow from the best.

Digital networking

GREATER TRANSPARENCY, GREATER EFFICIENCY

All functions and features of our counterbalanced trucks contribute to outstanding productivity. Digital networking and the usage and analysis of vehicle data – such as via our fleet management system – provide additional potential for further increasing the overall efficiency, safety and productivity of your forklift truck fleet.

ALWAYS UP-TO-DATE

Our counterbalanced trucks are highly complex machines that are being continually further developed and improved. In this way your trucks always remain state-of-the-art thanks to **over-the-air updates** for software and firmware. This usually takes place at night without a technician needing to be on site. Of course, you can also freely choose the times for these updates – just as your operational processes allow. In any case, we avoid unnecessary truck downtime. New functions can be provided just as easily (see **functions on demand**).

FLEXIBILITY AS REQUIRED

Whether it involves tackling new tasks or optimising operations: The digital forklift truck makes it possible to activate a variety of **functions on demand** and therefore equip the trucks flexibly for new requirements – without any mechanical work and on-site service appointments. And our extensive feature portfolio is growing all the time. Here are some examples of the range of functions that can be activated:

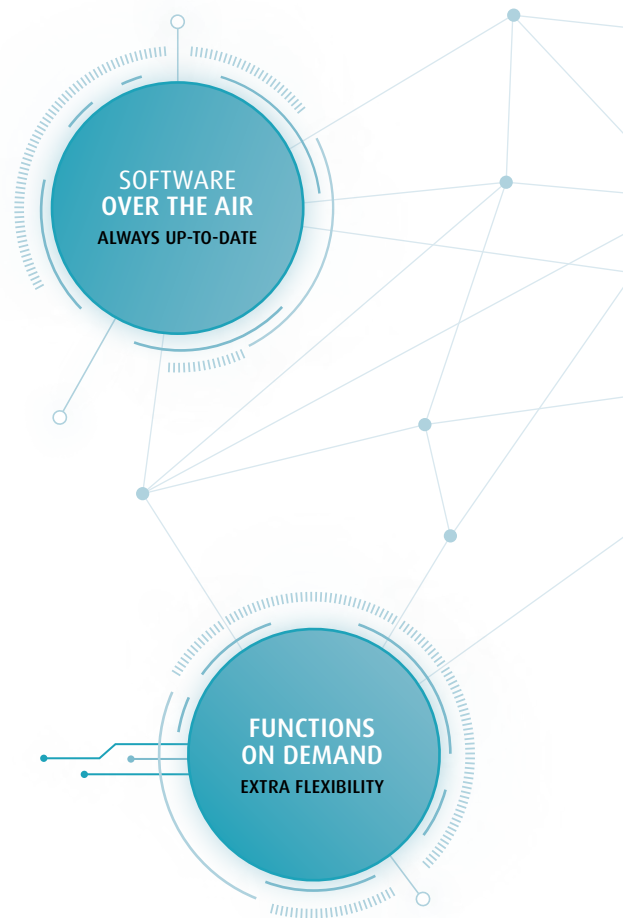
- Tilt angle preselection
- Load weight display
- Load-dependent speed reduction
- Truck Health Management

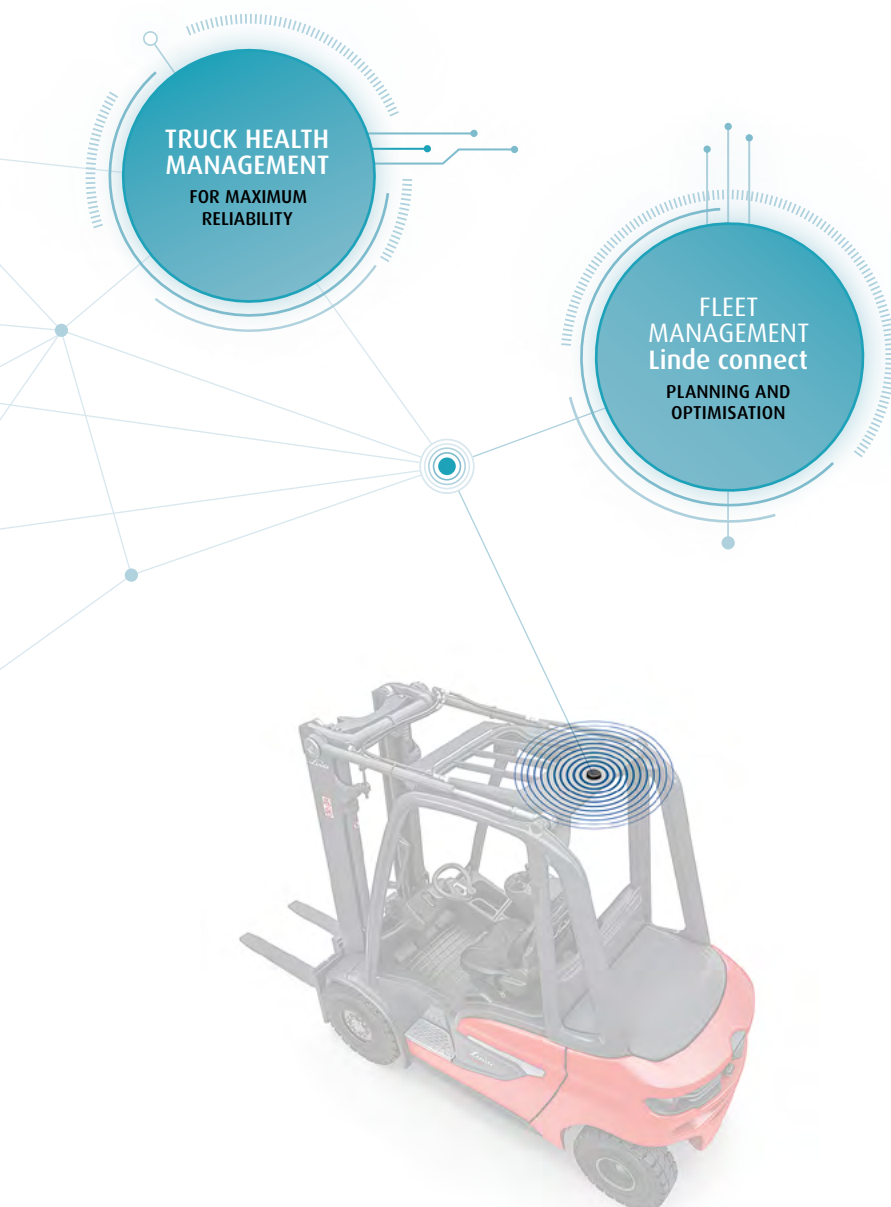
Your benefits

- Fast and simple activation of new functions allows for agile action
- Selective function booking avoids unnecessary costs
- The truck continues to develop along with your requirements

HEALTH CHECK IN REAL TIME

A big advantage of our networked counterbalanced trucks is the option of transferring sensor data to downstream systems in real time and to integrate them into digitally networked processes. For example, **Linde Truck Health Management**, which you can activate upon purchase or later on demand, shows how you can benefit in specific terms. Once activated, it continuously monitors central vehicle parameters such as the temperatures of coolant, oil, work hydraulics etc. like an ECG. If certain limit values are exceeded or fallen below, the fleet manager stored in the system receives a corresponding notification via email almost in real time. Managers can therefore act quickly and minimise the risk of unplanned downtime, consequential damage or even truck standstills. Furthermore the Truck Health Management provides corresponding recommendations for action for simple to carry out maintenance activities – for example if coolant needs to be refilled.





EFFICIENCY BOOSTER

Which forklift trucks are already being used? Which trucks were not optimally used to capacity in the past month? Where can more efficient routes be planned? Which service and maintenance appointments are coming up soon? Through seamless integration of the networked forklift trucks in our **fleet management system Linde connect**, you can manage your fleet across sites, identify bottlenecks, plan resources and maintenance efficiently and optimise the whole fleet performance.

Your benefits

- Usage analysis of the trucks helps to optimise the capacity and reduce idle time
- For electrically powered fleets, monitoring the charging statuses enables improved charge management
- Electronic access control reduces damage and therefore costs
- Recording impacts using a shock sensor (when, how strong) helps to identify danger points
- Limiting truck functions such as speed or lifting height in defined zones with the help of Linde Safety Guard technology

USEFUL INFORMATION

Transferring data

The counterbalanced trucks are equipped as standard with a data transfer unit. Relevant truck data can be transferred to your server or the Linde Material Handling central cloud server by mobile network or WiFi, depending on your requirements.

Data protection

Linde Material Handling maintains all data for each individual truck in a GDPR-compliant manner in a so-called digital twin – i.e. a virtual 1:1 image of the real device.

Data security

Linde Material Handling guarantees compliance with the highest data protection standards through multiple encryption during the collection, transfer, processing and storage of information.

Data base

The trucks are equipped with extensive sensor systems, including acceleration sensors or load capacity sensors. Among other things this enables the collection of consumption, wear and usage data.



“When it comes to making new acquisitions for our fleet of forklifts, the decision is always a balance between the purely financial side of things and the handling performance. Of course, the leasing rate and the servicing and operating costs are important factors. But our trucks have to do three shifts, seven days a week, so productivity is crucial. This means that the operating comfort, safety, manoeuvrability and speed have to be just right.”

ROGER KÖHLER, HEAD OF LOGISTICS, SCHOELLER TECHNOCELL GMBH & CO. KG





Productivity

TOP PRODUCTS FOR TOP NUMBERS

Tight spaces, demanding outdoor operations, challenging multi-shift operations: the conditions of your internal material flow should not determine productivity. That is why we have consistently designed our H, X and E trucks for maximum handling capacity, regardless of the drive and energy system. The wide range of equipment options with which you can adapt the units even more specifically to the requirements of your application also contribute to this.

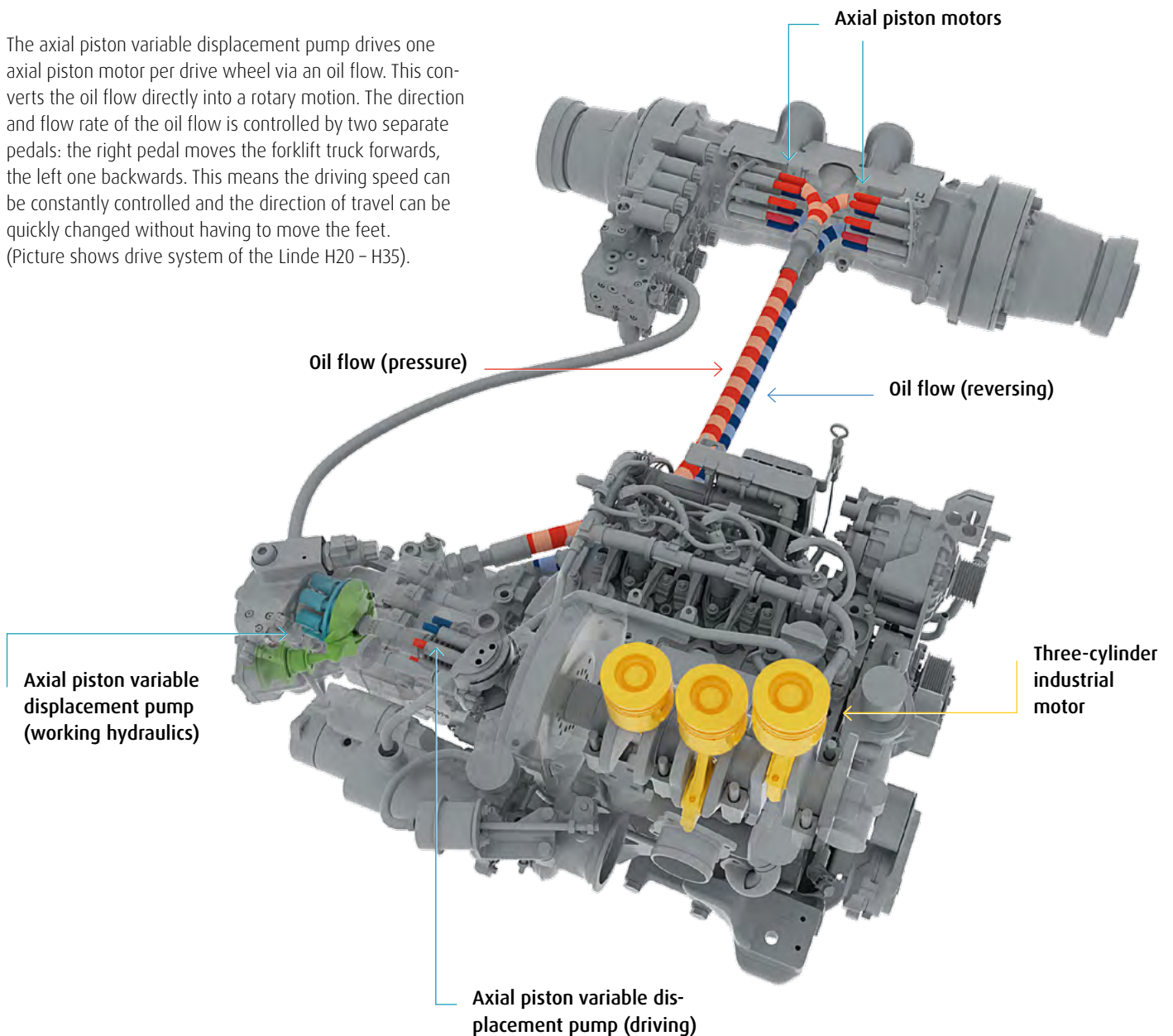
Linde H20 – H35 and H35 – H50

THE POWER TO PERFORM

What makes the precise and responsive drive performance of our counterbalanced IC trucks stand out from the competition is the hydrostatic drive – a concept that our engineers have been perfecting down to the last detail over the past 50 years. The closed and maintenance-free hydraulic system transfers the power of the industrial engine to the drive wheels and lifting hydraulic system without any loss, meaning that the exact power required is provided in every work situation. This guarantees fast changes of direction, sensitive manoeuvring in even the most confined spaces, smooth start-up, and precise loading and unloading from the shelf – all of which are crucial to achieving maximum throughput with minimum fuel consumption.

CONTINUOUS ACCELERATION AND DECELERATION

The axial piston variable displacement pump drives one axial piston motor per drive wheel via an oil flow. This converts the oil flow directly into a rotary motion. The direction and flow rate of the oil flow is controlled by two separate pedals: the right pedal moves the forklift truck forwards, the left one backwards. This means the driving speed can be constantly controlled and the direction of travel can be quickly changed without having to move the feet. (Picture shows drive system of the Linde H20 – H35).



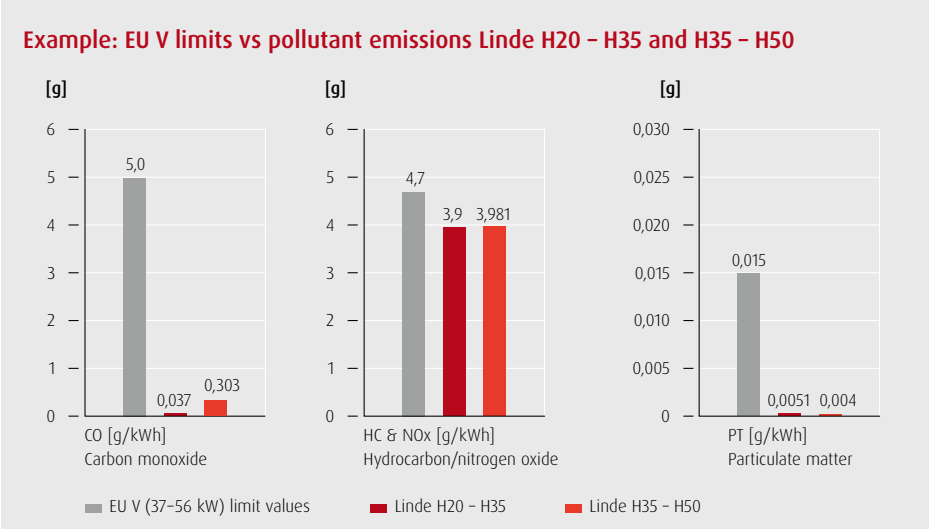


QUIET POWER

Many people believe the common myth that the quieter the engine noise, the lower the performance of the vehicle. Our counterbalanced forklift trucks also operate quietly, but this is in no way down to a lack of power: in fact, the hydrostatic drive allows constant drive performance at a lower engine speed – even when driving and lifting the load at the same time. So: same power, less noise.

CLEAN PERFORMANCE

Superior performance, minimal emissions: With the Linde H20 – H35 and the Linde H35 – H50 models, you benefit from the latest engine technology in accordance with EU exhaust emission level V. In some cases, our engines even undercut the already strict legal limits many times over, as the adjacent graphic shows. The diesel trucks are equipped with a particle filter and the LPG models with a 3-way catalytic converter as standard.



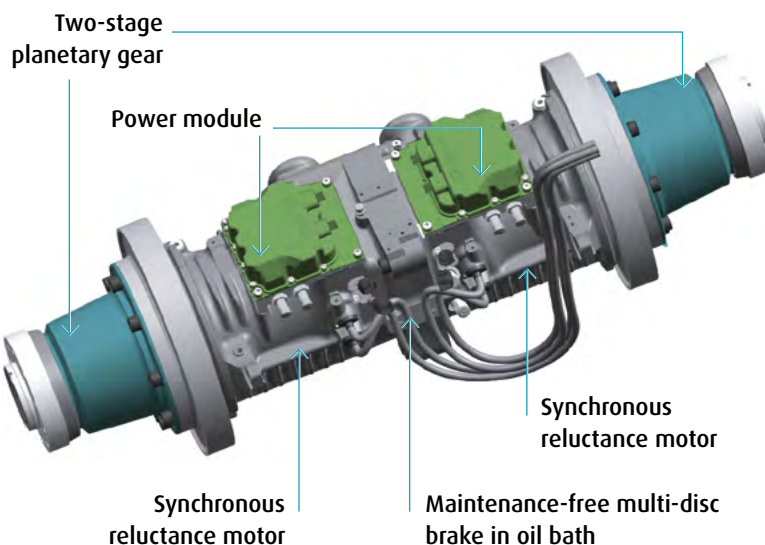


Linde X20 – X35 and X35 – X50 THE BEST OF BOTH WORLDS

Take the performance characteristics and power of internal combustion engines and combine them with the dynamics, flexibility and clean operation of electric trucks. The result goes by the name of Linde X20 – X35 respectively X35 – X50 and makes it possible for the first time to use battery-powered trucks where previously only combustion models were feasible. For your business, this means no compromises, even in the most demanding outdoor environments or challenging multi-shift applications.

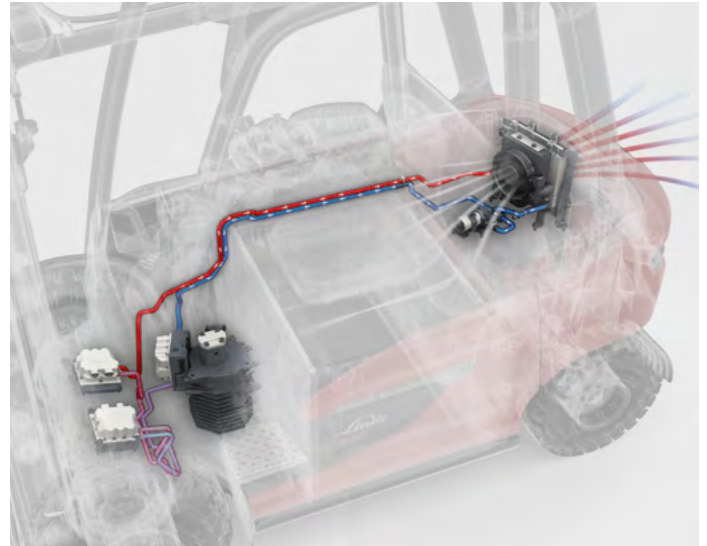
NEW LEVEL OF PERFORMANCE

At the heart of the Linde X20 – X35 and X35 – X50 drive unit is a generation of newly developed synchronous reluctance motors. Positioned on both sides of the drive axle, they make a decisive contribution to the enormous driving and lifting performance. To ensure that this also takes place with maximum efficiency, the units of the X trucks are additionally equipped with permanent magnets. The result: a higher load turnover with simultaneously improved efficiency and a measurably higher energy yield of up to five percent.



POWER NON-STOP

Tough multi-shift operations, long distances, big climbs and all the rest: nothing will be too quick to make the new Linde X trucks “sweat”. Highly efficient thermal management will see to that. With a new type of water cooling system, power components as well as the hydraulic oil are always kept at an optimal temperature, even under the heaviest loads, thus ensuring a constant power output.



RESISTANT TO DUST AND DIRT

Where electric forklifts have so far reached their natural limits, the Linde X20 – X35 and X35 – 50 models feel particularly at home: the new endurance champs can be used without hesitation in outdoor areas with extreme dust and dirt loads, as all power units in our trucks are hermetically sealed off from the outside and allow quick and uncomplicated cleaning.

MAXIMUM ENERGY

An outstanding performance level requires an equally outstanding energy system. That’s why we rely on powerful Li-ION batteries for the Linde X20 – X35 and X35 – X50. Compared to conventional lead-acid batteries, they boast a significantly higher energy efficiency as well as shorter charging cycles and can be topped up at any time. With these capabilities, our trucks not only offer you a level of performance and availability on a par with IC trucks; you can also rely on our unique multi-level safety concept of Linde Li-ION systems, which allows you to use the trucks even in the most demanding environments with high mechanical loads and/or temperature fluctuations. In addition, the batteries and power modules are sealed against moisture according to the IP69K standard. The enormous resistance of the Linde Li-ION batteries was tested in elaborate, specially developed crash tests.



STATE-OF-THE-ART ROBUSTNESS

Our productivity promise to you: with the Linde X20 – X35 and X35 – X50 models, your logistics specialists can achieve high handling performance even on challenging terrain. Among other things, this is ensured by the long wheelbase of our electric powerhouses. This enables excellent stability, which in turn has a direct effect on the working speed.



SOLID DOWN TO THE LAST DETAIL

Dusty slopes, muddy paths and all the rest: when forklifts need to be used in such environments, every last detail has to be designed accordingly. That's why our engineers have designed the Linde X20 – X35 and X35 – X50 models not only with extra ground clearance and an extremely robust chassis; the extra-large tyres also do their part to ensure the efficient and safe transport of goods on demanding terrain.



Linde H20 – H35, Linde X20 – X35

THE BENCHMARK

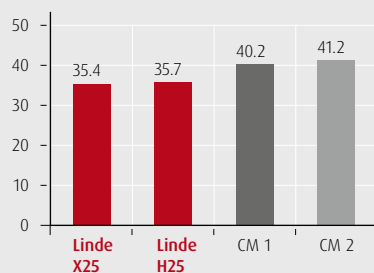
There's no question that, when you put a new forklift truck into service for your company, the ultimate goal is to make your flow of goods more economical and more efficient. To provide you with a reliable calculation basis, we have put our Linde H20 – H35 and Linde X20 – X35 models up against the most relevant competitor models of the same payload class powered by internal combustion engines in a performance test co-developed and certified by TÜV Nord. The results speak for themselves.

The basis of the forklift truck performance test are defined work sequences that are performed by the different vehicles under constant conditions. The time required and the real consumption are measured.

The performance and cost results of the TÜV Nord-certified performance test

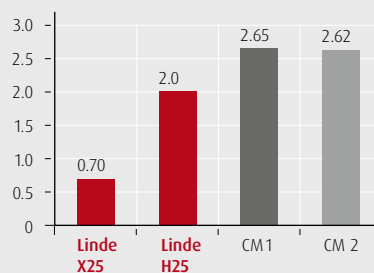
Time per truck¹⁾

Minutes



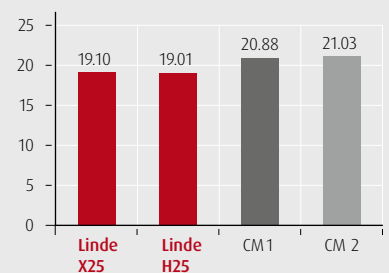
Energy costs per truck unloading^{1) 2)}

Euro



Total costs per truck unloading³⁾

Euro



¹⁾ 56 pallets per truck load

²⁾ Average kilowatt-hour price of 0.15 euros and 1.15 euros per litre of diesel fuel

³⁾ Personnel, energy, service and purchase price

CM = Competition models with IC drive

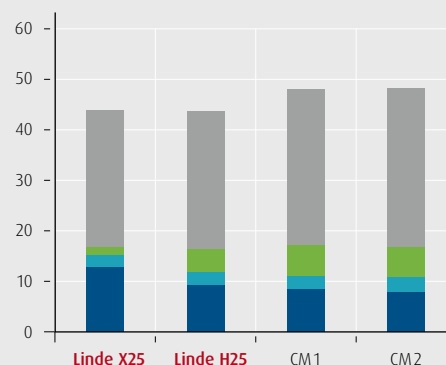
CONVINCING

In the end, it's always the bottom line that counts – and the Linde H25 and Linde X25 compare favourably with the competition. Both models not only compensate for the higher initial investment through lower service, energy and personnel costs, but also prove to be significantly cheaper over the entire operating period.

Economic Efficiency Calculation

Per year for a total term of 60 months

Costs
in € 1,000 per year



Values on which the calculation is based on average:

- 230 working days per year
- 10 truck loads per day
- 56 pallets per truck
- € 1.15 per litre of diesel
- € 0.15 per kilowatt hour
- € 1.80 service charge per operating hour
- € 20.00 hourly wage
- 0 % residual value

■ Personnel costs
■ Energy costs
■ Service costs
■ Purchase price

CM = Competition models with IC drive

Linde E20 – E35 and E35 – E50 E FOR EXTRAORDINARY

Wherever there is a lot of activity and close quarters in indoor use, their strengths really come to the fore: with the Linde E20 – E35 and E35 – E50 models, you'll enjoy the benefits of the most powerful trucks for heavy-duty indoor operation. This is due in large part to the intelligent drive and energy concept of the agile electric multi-talents.

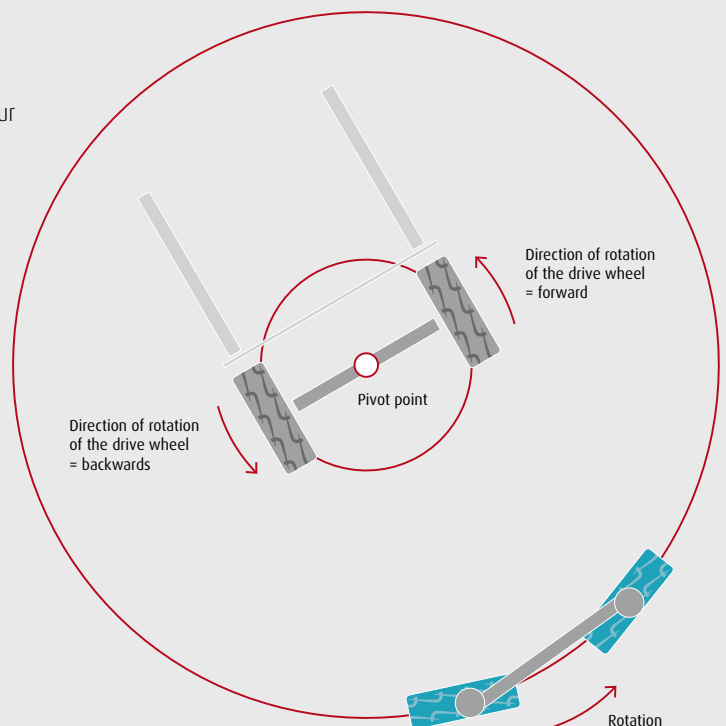
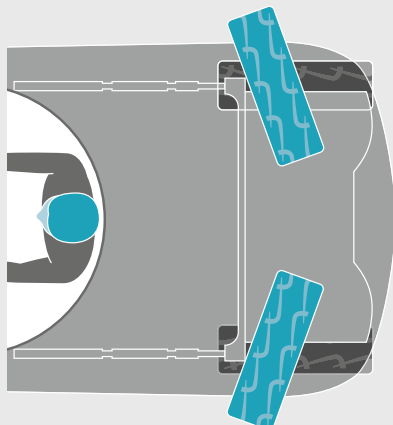
TWO ARE BETTER THAN ONE

An important basis for the outstanding manoeuvrability of the Linde E20 – E35 and E35 – E50 models is the powerful twin-motor front-wheel drive. The advantage of this intelligent design lies in the active control of the drive axle via the front wheels. The power is also distributed individually to both synchronous reluctance units by a traction control system. So if a wheel spins on a slippery surface, for example, the optimum tractive force is still maintained.



CLEVER COMBINATION

Together they are an unbeatable team: in the Linde models E20 – E35 and E35 – E50, the twin-motor front-wheel drive works together with our patented combi-steering axle, which further improves agility and thus working in confined spaces. With this unique solution, each steering knuckle can be rotated individually by 175 degrees; in addition, the axle has been suspended around 30 per cent higher than conventional designs. Noticeable benefits for your users include the ability to turn on the spot without the truck pushing over the rear wheels, reduced steering resistance and increased tilt resistance.



TWISTING AND TURNING

Swift, tyre-friendly turning manoeuvres on the spot for more productive processes: with the Linde E20 – E35 and E35 – E50 models, the front wheels steer actively by moving in opposite directions; meanwhile, the rear wheels enable a tight turning circle with extreme turning ability.



RIDE AS IF ON CLOUDS

This is the impression your drivers will have after their first shifts with the Linde E20 – E35 and E35 – E50 models. In addition to the mast and steering axle, the drive axle of our electric forklift trucks is also vibration-decoupled by a special elastomer ring bearing. Vibrations that are hazardous to human health, such as those emanating from thresholds, guide rails, uneven floors and other disturbances in indoor areas, are thus reduced to an absolute minimum.

ENERGY CONCEPTS – TAILORED TO YOUR NEEDS

Maximum flexibility is the watchword when it comes to the energy source for our Linde E20 – E35 and E35 – E50 models. Depending on your use requirements, you can equip our electric forklifts with proven lead-acid batteries, modern Li-ION energy storage systems or innovative fuel cell systems. Do you want to continue using existing batteries from your Linde fleet? This is also no problem with our E series counterbalanced forklift trucks.



PERFECTLY BALANCED: CHARGE WITH A STRATEGY

Where many electric forklifts are in use, well-planned charging management is crucial for cost-optimised operation of your vehicle fleet. This is why we support you within the scope of our load balancing to limit the available charging power both statically and dynamically – and in this way avoid expensive power spikes. Our energy professionals work with you to develop individually tailored charging strategies and provide you with advice and support during their implementation.

SUSTAINABLY WELL ADVISED

Would you like to transfer your entire forklift fleet from fossil fuels to sustainable energy sources in the long run? Or does your application require mixed operation of several different energy systems? At Linde Material Handling, we accompany you through all phases of such transformation processes to make them as cost-efficient and smooth as possible for you. Our advisory services also explicitly cover the important topic of infrastructure.



Linde E20 – E35 and E35 – E50

MEASURABLE ADDED VALUE

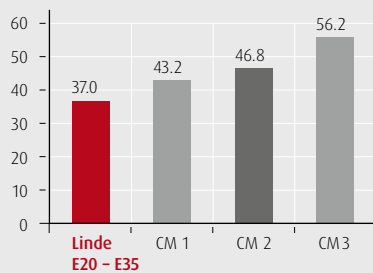
With the Linde E20 – E35 and E35 – E50 models, you can bring members of the world's most powerful electric forklift truck series into your operations. To prove the superiority of our agile indoor specialists, we had the Linde E20 – E35 compete against the most important competitor models in a performance test co-developed and certified by TÜV Nord.

The basis of the forklift truck performance test are defined work sequences that are performed by the different vehicles under constant conditions. The time required and the real consumption are measured.

The performance and cost results of the TÜV Nord-certified performance test

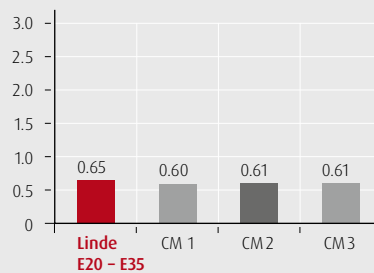
Time per truck¹⁾

Minutes



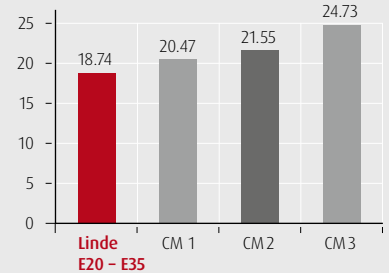
Energy costs per truck unloading^{1) 2)}

Euro



Total costs per truck unloading³⁾

Euro



¹⁾ 56 pallets per truck load

²⁾ Average kilowatt-hour price of € 0.15

³⁾ Personnel, energy, service and purchase price

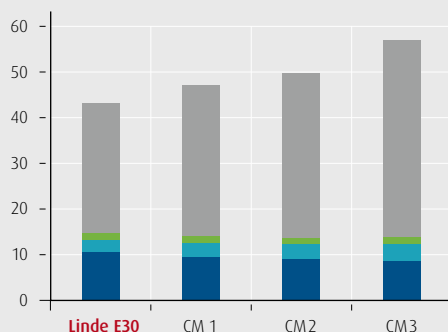
CM = Competition models with electric drive

Economic Efficiency Calculation

Per year for a total term of 60 months

Costs

in € 1,000 per year



Values on which the calculation is based on average:

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- € 0.15 per kilowatt hour
- € 1.80 service charge per operating hour
- € 20.00 hourly wage
- 0 % residual value

■ Personnel costs
■ Energy costs
■ Service costs
■ Purchase price

CM = Competition models with electric drive

THE RIGHT CALCULATION

Right at the bottom of the podium – and proud of it: in direct comparison with the most relevant competitor models, the Linde E30 delivers a significantly better cost balance. This is due not only to the lower service costs; personnel costs are also significantly lower thanks to the higher handling capacity.

Flexibility and Variety

THE PERFECT BALANCE

We know from decades of experience with customers from a wide range of industries that maximum productivity results from the intelligent interplay of a wide range of equipment features. It is not only components such as the drive and energy system that count; even the smallest details, such as perfectly executed interfaces or optional equipment features, can make a big difference at the end of the day.



ALWAYS WELL EQUIPPED

No matter what the application, our counterbalanced forklift trucks can be perfectly adapted to any individual usage scenario. There are three different driving modes available, which allow both the drive performance during acceleration and the final speed to be individually adjusted:

Economy

- ideal for narrow driving paths and in areas with speed limits
- allows for careful load handling with reduced energy consumption

Efficiency

- default setting
- the perfect balance between performance and cost-effectiveness

Performance

- ideal for forklift trucks with attachments or for covering long distances including ramps
- enables maximum handling capacity

Depending on capacity utilisation, consumption costs can thus be significantly reduced in relation to the handling capacity.

PERFECTLY PREPARED FOR OPTIMUM RETROFITTING

In order to be able to fit electrical equipment to the mast more easily, we have provided two electrical interfaces: as standard, there is a separation point located on the right-hand side in the direction of travel. This is for any equipment which is permanently installed on the exterior mast, such as Linde Load Assist, lights and cable length indicators (see image at the bottom right). There is an optional interface located on the left-hand side for equipment to be carried on the fork carriage: here, in just a few easy steps, the side shifter can be installed in the centre position, forks in the neutral position, as well as other connections for attachments (see image at the bottom left). The major advantage of this is that there is no longer a need for laying cables inside the truck, which can be particularly awkward.



Fork carriage interface



Mast interface

OPTIONS, OPTIONS AND MORE OPTIONS

The versatility of our counterbalanced forklift trucks is particularly apparent in the large variety of models on offer: In addition to different needs-specific designs, there are 80 mast options and over 400 equipment options to choose from. And if there really is nothing suitable, we are happy to develop custom-made designs for unusual application scenarios.

Splash Guard Outdoor applications in rain and bad weather can be muddy business. That's why our counterbalanced forklift trucks are fitted with a large splash guard to the front and rear.



CS20 Tyres

A strong drive performance requires strong tyres: the L-shaped tread on our CS20 tyres – developed in collaboration with Continental – enhances traction while also reducing rolling resistance. This enables high mileages with low energy consumption – no matter what the terrain.



Standard, Duplex or Triplex Mast

Our wide range of mast variants allow for safe and precise storage and retrieval at any lifting height – whether in low containers or on shelves measuring up to eight metres. Depending on the preferred working height, customers can choose between our standard, duplex or triplex masts.



Attachments Upon request, we can install attachments such as side shifters or fork positioners on the truck, without impairing the visibility or load capacity.



EFFICIENCY GUARANTEES AT A GLANCE



Proven Operating Concept

Linde Load Control, designed for controlling all movements of the truck and lift mast, along with dual-pedal control, ensure precise and therefore fast load handling. They provide a time saving of up to ten percent.



Ergonomic Driver's Workstation

This reduces the physical strain on the driver and ensures fatigue-free working throughout the entire shift.



Optimised Visibility

This increases the safety in load handling and therefore ensures greater productivity when using the forklift trucks.



Robust Truck Construction

It makes our counterbalanced forklift trucks low-maintenance and less prone to needing repairs. This is reflected in the high availability of the trucks. This significantly reduces the cost per operating hour.



Designed for Easy Servicing

Easy access to components that require servicing enables the service technician to work quickly.



Perfectly Configurable

With our numerous optional equipment variants, the forklift trucks can be adapted to suit individual applications and requirements.



Drive Solutions That Fit

From diesel to lead-acid, from industrial engine to synchronous reluctance unit, from LPG to lithium-ion to fuel cell – the Linde counterbalanced forklift trucks of the H, X and E series always offer you the best performance in the right place.



"Servicing is of course a major issue here in the cleaning room. Despite the heat, dust and soot putting a heavy strain on the forklifts, they still have to perform at full capacity at all times. They can't keep breaking down and we also have to keep costs to a minimum. Equipment like this simply has to work."

MARKUS WÄHNER, HEAD OF SERVICING,
TROMPETTER GUSS CHEMNITZ GMBH





Service

ROBUST AND DURABLE

Downtime or repair-related outages cost time and money and can be a real strain. To spare you this inconvenience, we have developed our forklift trucks to withstand the highest requirements in terms of operational availability – they are: **DESIGNED TO SERVICE.**

Operational Availability

ABOVE ALL, FORKLIFTS MUST DO ONE THING: DELIVER!

Right from the development stage, our engineers' goal was to make our counterbalanced forklift trucks so robust and requiring so few repairs that the servicing costs would be much lower than those of our competitors. And they succeeded.

DOWN WITH DOWNTIME!

Our Linde H20 – H35 und H35 – H50 trucks are equipped as standard with the Linde Engine Protection System – LEPS for short. This monitors important engine parameters, from oil level and pressure to coolant level and temperature, and notifies the user when servicing is required. In addition to the LEPS, numerous other features also help to avoid downtime and thus unnecessary costs:

- The hydraulic oil suction filter is designed to last for the entire life cycle without being replaced.
- The evaporator for the propellant gas engine only has to be serviced after 3,000 operating hours.
- Servicing and repair work is made even simpler thanks to the central coolant drain and the use of standard screws.
- It is only necessary to change the hydraulic oil after 6,000 operating hours.
- For the air filters, there is the option to use multicyclone filters instead of oil bath pre-filters.
- Extra-large service openings (see image on the right) make the drive system accessible from above and from both sides.
- Rather than the drive belts usually used in automotive engines, the industrial engine has low-maintenance spur gears (see image below).



LESS MAINTENANCE

This much is clear: the greater the availability of your industrial trucks, the more productively you can work. To make that possible, we have significantly reduced the maintenance requirements of our counterbalanced forklift trucks over their entire service life.

Our Highlights, Your Benefits

- We have improved accessibility to the individual components by installing removable panels and extra-large service openings.
- There is no longer a need for regular torque checks of the screw connections on the steering axle, steering cylinder, axle clamp or wheel end.
- The industrial engine of the Linde H20 – H35 and the Linde H35 – H50 is particularly robust.
- In the X and E trucks, both the synchronous reluctance motors and the brakes in the drive axle are maintenance-free.
- The oil filter for the lifting hydraulics of the X and E trucks only needs to be changed after 6,000 operating hours. A daily check of the hydraulic oil level in the system is not necessary.
- In the X and E trucks, the drive axle with the two integrated electric motors and the inverter are completely sealed against dust and water as a unit.
- In the Linde X20 – X35 and X35 – X50 models, it is only necessary to change the coolant of the thermal management system after 6,000 operating hours.
- Our Truck Health Monitoring enables comprehensive fault monitoring and faster fault localisation.
- Symbols on the display alert the driver to errors and prompt them to refill the oil or washer fluid, for example, depending on the model. These servicing processes are so simple that there's no need to call a service technician.



MAINTENANCE-FREE TILT CYLINDERS

Our tried-and-tested overhead tilt cylinders are connected to the mast so that loads are evenly distributed across the entire structure. This guarantees a high residual capacity and a low torsion of the mast profiles. Even with the integrated side shifter, the truck is still able to achieve its full nominal load capacity.

ROBUST CRASH PROTECTION

The standard side skirts in the frame construction of our counterbalanced forklift trucks are particularly robust. The reliability of our crash protection goes a long way to preventing start-up damage of any kind and therefore helps to avoid expensive repairs to the frame from the outset.



WIRELESS DIAGNOSTICS

The optional Linde **"Truck Health Management"** (see Page 27) constantly monitors the "state of health" of the truck, usually detects any problems that may arise at an early stage using error codes and sensor data and makes the information available almost in real time. Specifically this means: Any damage occurring is identified in good time, so that serious consequential damage can be avoided from the outset. For the user this means: significantly higher availability of the trucks.

The diagnosis **"over the air"** also enables service technicians to take the right spare parts with them to the repair – a valuable time saver. Another benefit: The counterbalanced trucks can be maintained remotely and can be localised on the factory premises using GPS. This eliminates the need to search for trucks; maintenance and repairs can be carried out without delay.



ONE SCREW FITS ALL



When it came to developing our counterbalanced forklift trucks, we reinvented the wheel – or more specifically, the screw. We now use one type of screw for 65 percent of all the screw connections on our trucks, which saves a lot of time during repairs and servicing. What makes this new development so special? The washer can be moved, but it is also fixed to the screw and the nut, meaning it is impossible to drop. In addition, the screw can be tightened or loosened not only using an external hex, but also with a Torx tool. This means the screw can always be loosened or tightened, even in areas where it is not possible to reach it with a wrench or where one of the two attachment points has worn down.

Linde Material Handling GmbH

Linde Material Handling, a KION Group company, is a leading global manufacturer of forklift trucks and warehouse trucks, and a solutions and service provider for intra-logistics. With a sales and service network that spans more than 100 countries, we are close to customers in all major regions around the world.

With over 100 years of experience in providing material handling solutions to companies in virtually every industry, we help our customers optimise their entire material handling process. Our experts analyse all workflows from goods receiving to shipping and work with the customer to develop solutions that fully meet their individual requirements. In the process, Linde Material Handling guarantees smooth implementation, reliable commissioning and responsive service.

For further information, please visit: www.linde-mh.com



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