

Linde Material Handling

Linde

EXCELLENCE IN THE DETAIL, PERFECTION AS A WHOLE.

Counterbalanced Forklift Trucks H20-H35 by Linde





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

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

TIPPING ACCIDENTS POSE A HUGE RISK TO PEOPLE AND LOADS – THE EQUIPMENT'S CENTER OF GRAVITY MUST THEREFORE BE AS LOW AS POSSIBLE.

Feedback from customer surveys from 2011 to 2013

BETWEEN THEM, THE STEERING WHEEL AND ARMREST SHOULD COVER ALL THE NECESSARY FUNCTIONS, SO THAT THE USER HAS TO MOVE AS LITTLE AS POSSIBLE.

Feedback from customer surveys from 2011 to 2013



For me, it is important that the forklift truck is comfortable. After all, I spend several 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



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, Manufacturing Site Sömmerda, Germany

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

Feedback from customer surveys from 2011 to 2013



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

Daniel Liebst, Foundry Manager, BOHAI TRIMET Automotive Holding GmbH, Manufacturing Site Sömmerda, 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 from 2011 to 2013



Our forklifts are permanently in use. This means that every planned or unplanned period of downtime has a significant impact on production.



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

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

Feedback from customer surveys from 2011 to 2013

INFORMED BY YOUR REQUIREMENTS. PERFECTED BY OUR PERFORMANCE.

E-commerce, just-in-sequence supply of production lines, increasingly digitalized 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 producing this product for? How does my customer think? What are their current needs and what might they need in the future? In order to find answers to these questions, we talked to users of all sizes from all sectors. **We listened, analyzed, questioned – and ultimately created a range of models which sets new standards across the industry.**



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.

OVERHEAD TILT CYLINDERS

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

LARGE WINDOWS

→ outstanding 360° visibility

LARGE DRIVER'S CABIN

→ 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 ARMORED 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





NEW DISPLAYS
→ essential information in
the driver's field of view

LESS IS MORE

VISIBLY SUPERIOR

**PARTICULARLY
NARROW A-PILLAR**
→ optimal panoramic view

More visibility, more control, fewer accidents: Thanks to the optimized 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 armored glass roof guarantees the best view upwards.

INTERNAL 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

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
→ minimized 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 18–23

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 24–27

Perfectly prepared for the future – with the **data transmission unit as standard**, every forklift truck can be easily networked via a data interface or linked to the connect:cloud.



Productivity 28–31

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



Drive

32–35

Thanks to the hydrostatic drive and state-of-the-art engine technology, the compact Linde H20 to H35 IC trucks are both high-performance and eco-friendly.



Service

36–39

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 maneuverable, 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 meters 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 SIT

What does a good forklift need? There is 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.



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.



DECENTRALIZED 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 maneuvering. Thanks to its decentralized 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 maneuvers 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.



CUSTOMIZABLE OVERHEAD CONSOLE

The buttons for headlights, heating and other functions that are particularly relevant at the start of work have been incorporated into the overhead console. A radio with a Bluetooth hands-free system can also be integrated – so the driver can be reached at any time, no matter where they are in the plant. There are also ten useful 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

Fuel level, 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 multifunction display (see picture), which displays the Linde Safety Pilot or live images from the attached camera systems. The driver can select what to display and how the screen is divided according to their individual needs.

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. This also reduces health-related absences.



COME ON IN

Depending on their height, getting in and out of the cab 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 shorter people can climb on board comfortably too. Good grip is guaranteed thanks to the perforated, non-slip tread plate and the new 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 damages to health. Even the standard seat has been further optimized to offer even more comfortable, wider padding, along with a lower seat structure, which has the added benefit of creating more headroom. The star among the best seats is:

The Super Comfort active seat

- The larger, thicker seat and back padding provides an outstanding level of comfort even during long shifts.
- The new 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

With or without the driver's cabin – 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 contributes to the health, wellbeing and therefore also the productivity of the operator. The drive and steering axles as well as the mast have also been decoupled from the chassis using rubber bearings, and the ends of the masts have been electronically damped. All in all, this ensures that physically taxing shocks and vibrations are not transmitted to the driver, which reduces the risk of health-related downtime while also decreasing the level of wear to 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 Cabs

- 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 10 centimeters of extra headroom and 51 centimeters of legroom in the foot well.
- Height of the overhead guard in the standard version: 2.32 meters.
- A container variant with an overhead guard height of 2.22 meters is available as an option.



With cabin

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

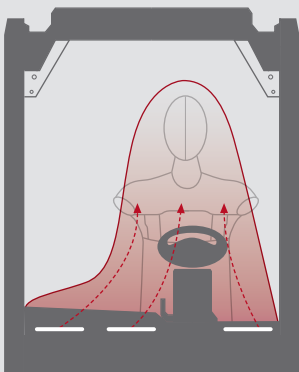


Without cabin

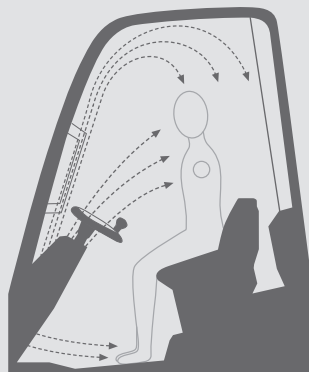
Thanks to numerous design optimizations, the operator has a clear view in all directions.

COMFORTABLE CLIMATE

Weather conditions such as heat and cold can adversely affect the driver's wellbeing, and therefore also their productivity. For this reason, we have further optimized the optional air conditioning system.



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



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

From -20°C to +22°C in 15 minutes

From +35°C to +22°C in 10 minutes

- A total of eight nozzles can heat or cool the cab 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.



“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 the 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 Linde's ability to support each of our customers in optimizing 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 in terms of the basic structure or design measures for improving visibility, we take a holistic approach to safety with our "Vision Zero" safety mission, which aims to ensure that accidents never happen with our customers.

RELIABLE CONSTRUCTION

As soon as our trucks leave the plant, the standard of passive safety has already been set high: The low center 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 cylinder



Asymmetrical mast profiles



Suspended steering axle



Tipping level

Low center of gravity

Stable cabin design



Stability triangle

With our counterbalanced trucks, the overall center 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.



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. If the driver is not wearing a seatbelt, the truck will only travel at a very low speed. For forklifts with a cabin, the optional 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 maneuver 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 armored 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 optimizations, 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.



- Visible area
- Not visible areas

Assistance Systems

SAFELY AT YOUR SERVICE

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. Linde Curve Assist and Linde Load Assist are standard features, while the Linde Load Weight Indicator, the Linde Safety Pilot and the Linde Safety Guard can be selected as options.



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 displays important parameters such as the center 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 colors 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.

Warning/lighting systems

SEEING AND BEING SEEN

Whether in halls or in outdoor areas, when handling goods in containers or in truck trailers: Operators in logistics often have to work in insufficient lighting conditions. This is why our counterbalanced forklift trucks are fitted with various warning and lighting solutions designed to meet logistical requirements.

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 Safety Guard is able to locate other trucks and pedestrians down to the centimeter. As they move toward each other, they begin to vibrate, beep or flash, alerting the individuals in the vicinity.



TruckSpot™

A particular highlight is the optical warning signal solution TruckSpot™ – the next evolutionary stage of the BlueSpot™. Instead of a blue ball of light, the system projects a 1.25-meter, bright warning triangle onto the ground behind the truck for a highly effective and universally understandable warning, which is instantly recognizable 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 work headlamps

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

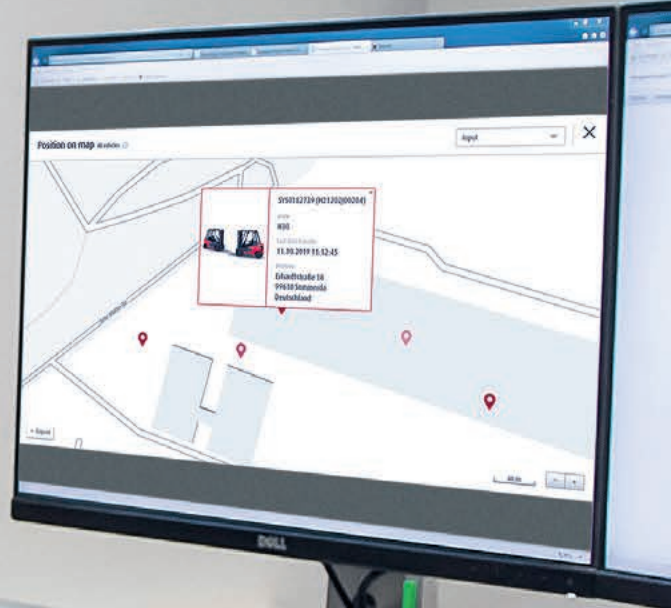
LED stripes

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 traveling in, even from far away.



— Lighting system

— Warning system



“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 that 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

WELL CONNECTED, WELL PREPARED

Our counterbalanced forklift trucks ensure that you are ready for the digital future. Thanks to the standard data transmission unit, all trucks can be easily integrated into fleet management systems. This is how we make daily usage data transparent for you. What is the benefit of that? Through digital networking, we help you to use your forklift trucks more efficiently and safely, to optimize servicing planning or to avoid repairs. All in all, this increases the availability of your fleet.

Digital Networking

MORE TRANSPARENCY. MORE EFFICIENCY.

The various functions and features of our counterbalanced forklift trucks are what make them so outstandingly productive. Digital networking provides additional potentials for efficiency, as does the use and analysis of vehicle data via the fleet management. Our trucks are ready to start fulfilling these requirements as soon as they leave the plant.

READY TO FACE THE DIGITAL WORLD. NOW AND IN THE FUTURE.

With our networked forklift truck, we are bringing the world of digitalization into series production. You benefit from software features that are tailored to your individual needs. Data such as operating hours is recorded regularly and provides you with information about how well the capacity of a truck is being used via our fleet management software Linde connect. Because one thing is certain: The more you know, the better you can plan and use your forklift trucks not only more efficiently but also more safely.

Thanks to digital networking, there are also new possibilities for service and retrofitting: Digital error codes and the error history logs provide information about the condition of the truck and therefore provide the basis for carrying out truck diagnostics remotely in the future. It will also be possible in the future to unlock software functions "over the air," and to carry out wireless updates of the control software. This will allow us to improve the performance and functionality of your forklift trucks and keep them up to date.



OUR FEATURES, YOUR BENEFIT



Simple Data Transfer

The counterbalanced forklift trucks are fitted with a data transmission unit as standard. Depending on the requirements, relevant vehicle data can be transmitted to your servers via the mobile network, or WiFi, or to Linde's central cloud servers.



Everything at a Glance

From operating hours to access control – our counterbalanced trucks interact with your fleet management. This allows you to optimize the utilization of your trucks, to plan servicing intervals more effectively, and to manage usage and other processes relating to your drivers and your forklift trucks.



High Level of Data Security

Linde Material Handling guarantees compliance with the highest data protection standards thanks to multiple encryption in the collection, transmission, processing and storage of information. This ensures that any confidential information stays confidential. Linde uses one of the most secure cloud infrastructures available on the market.



Prevention is Better Than the Cure

A series of error codes are used to report wear or potential damage to the forklift truck. This reduces the risk of serious consequential damage and ensures consistently high availability of the trucks.



Reliable Sensor Technology

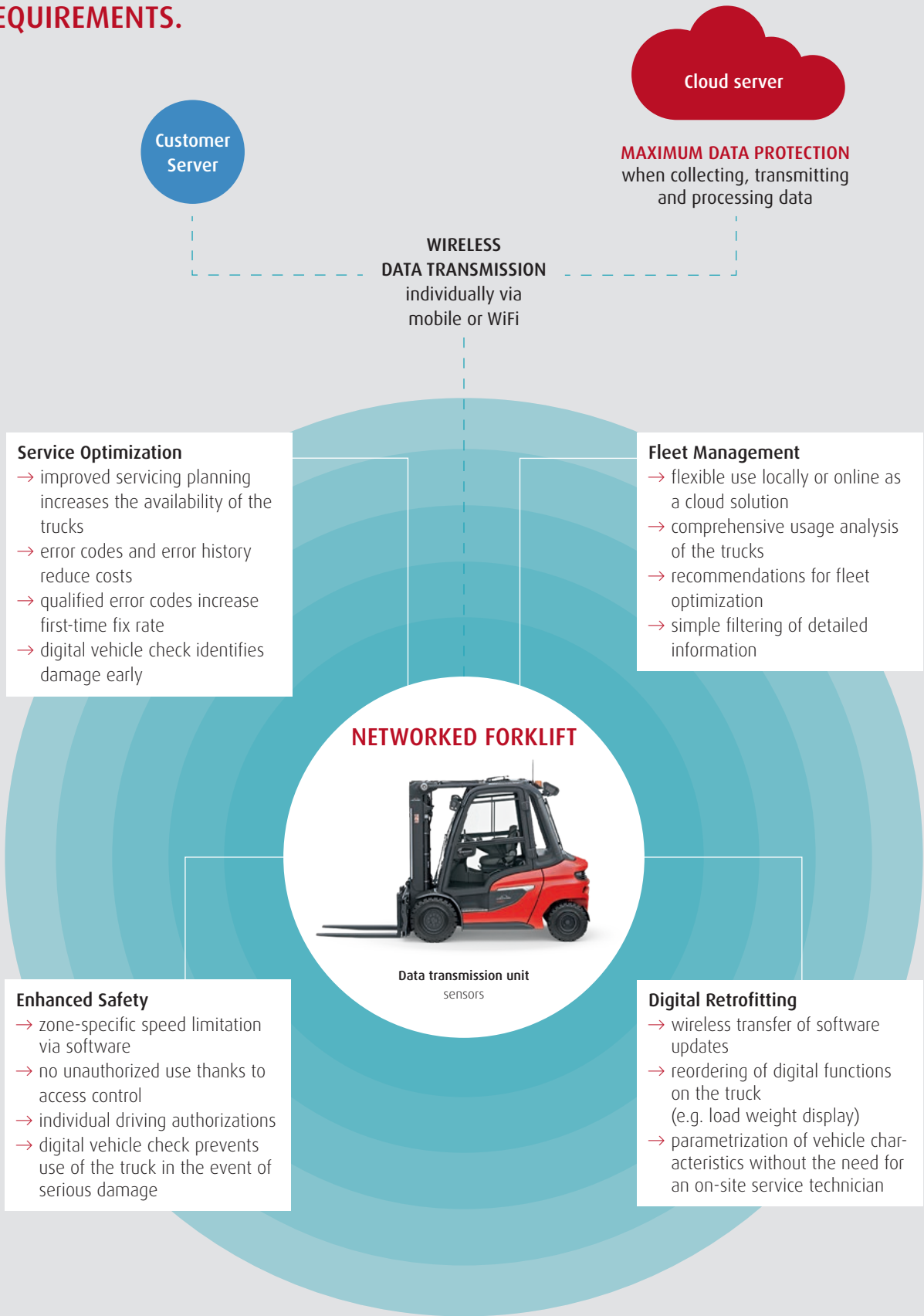
The forklift trucks are equipped with sensitive sensors which register any factors which affect the equipment, such as vibrations or outside temperature.



Precise Location

The data transmission unit uses GPS to identify the exact position of a forklift truck in the outdoor area via the fleet management software.

FULL FLEXIBILITY FOR ALL REQUIREMENTS.



“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, maneuverability and speed have to be just right.”

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





Productivity

TOP PRODUCTS FOR TOP NUMBERS

With our counterbalanced forklift trucks, we offer you the perfect solution for a wide variety of requirements. In specific terms, this means that no matter how your in-house material flow is designed, our model variants and equipment options allow you to customize the equipment to suit your exact needs, including custom-made designs. So nothing will stop you achieving maximum efficiency.

Flexibility and Variety

THE PERFECT BALANCE

When it comes to efficiency and productivity, we make sure our counterbalanced forklift trucks offer the best performance in their class. Optimized chassis and cabin design for the best possible visibility, a comfortable and ergonomic workstation, the advanced mast concept for maximum safety in load handling, outstanding digital networking options, and easy servicing: All of these features come together to ensure maximum productivity in the use of our forklift trucks.



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 the capacity utilization, consumption costs can 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 on the 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 center position, forks in the neutral position, as well as other connections for attachments (see image on the 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: Customers can choose from three designs – standard, beverage or container – as well as from 80 mast variants and a wide range of over 400 equipment options. And if there really is nothing suitable, we are happy to develop custom-made designs for unusual application requirements.

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 Tires

A strong drive performance requires strong tires. The L-shaped tread on our CS20 tires – 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 meters. 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.



Optimized Visibility

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



Robust Truck Construction

This 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 standard and optional equipment variants, the forklift trucks can be adapted to suit individual applications and requirements.



Here you can find more content via your smartphone:
Linde Augmented Reality App



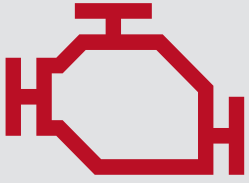


“Here we have a foundry with a connected smelter.

This makes for some challenging environmental conditions, especially in the vicinity of the furnaces. Due to the foundry we also have an increased air pollution from dust particles. And of course this also puts strain on the engine due to the air intake.”

**CHRISTIAN SCHÖNTAG, HEAD OF MAINTENANCE AND SITE SERVICES,
BOHAI TRIMET AUTOMOTIVE HOLDING GMBH, MANUFACTURING
SITE SÖMMERDA**





Drive

COMPACT POWERHOUSE

At the heart of any industrial truck is the drive system. Whether as a diesel, propellant gas or natural gas version, the combination of the Linde hydrostat and the industrial engine makes our Linde H20 to H35 IC trucks the most modern and powerful in their class.

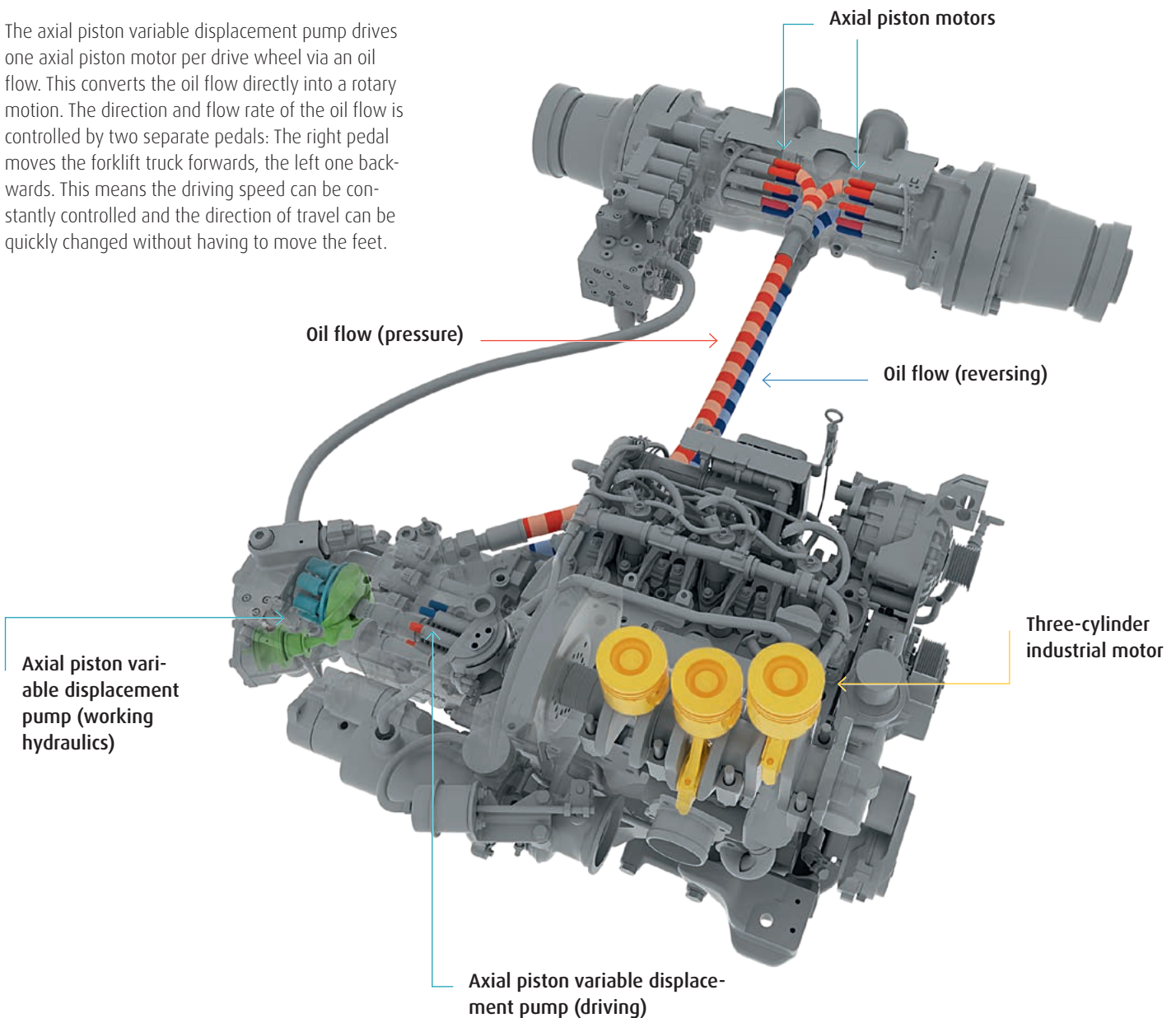
Linde H20 to H35

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 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. No more and no less. This guarantees fast changes of direction, sensitive maneuvering 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.





QUIET POWER

It is a 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 actual fact, the hydrostatic drive allows constant drive performance at a lower engine speed – even when driving and lifting the load at the same time. In other words: Same power, less noise.

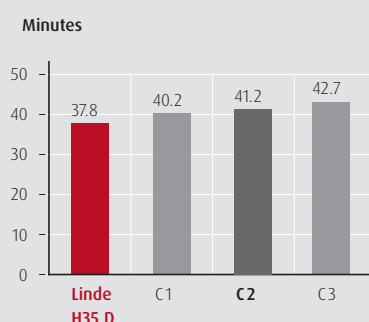
COUNTING THE COSTS

Of course, our counterbalanced forklift trucks also check all the boxes in terms of the total cost of operation: Calculations show, for example, that in direct comparison to the competition, our trucks present the best overall cost analysis. This not only takes into account the performance, but also servicing and personnel costs; even over periods of more than 20,000 operating hours.

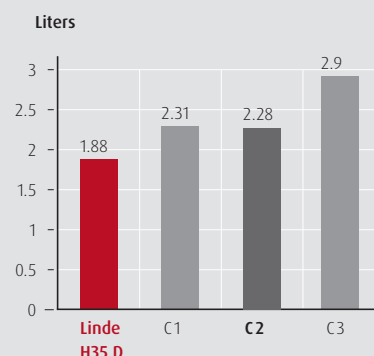
TÜV Nord-certified forklift truck performance guarantee test

C = competitor

Time per truck (56 pallets)



Diesel consumption per truck (56 pallets)



PROFITABILITY ANALYSIS

Customer Data

Working days per year	230 days
Number of trucks per day	10 trucks
Number of pallets per truck	56 pallets
Operating period of the forklift truck	60 months
Residual value of the forklift truck	25%
Service costs per operating hour	€2.00
Personnel costs per hour	€20.00
Diesel price per liter	€1.15

Forklift truck	Linde H35 D	C2
Price	€38,360	€28,770
Time per truck	37.8 min.	41.2 min.
Annual operating hours	1,449 h	1,579 h
Energy consumption per truck	1.88 l	2.28 l
Costs per truck (56 pallets)		
Financing costs per forklift truck	€2.50	€1.88
Personnel costs	€12.60	€13.73
Energy costs	€2.16	€2.62
Service costs	€1.26	€1.37
Total	€18.52	€19.60

Your savings:

€2,484 per year



“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 with our competitors. And they succeeded.

DOWN WITH DOWNTIME!

Our IC 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 effectively 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).

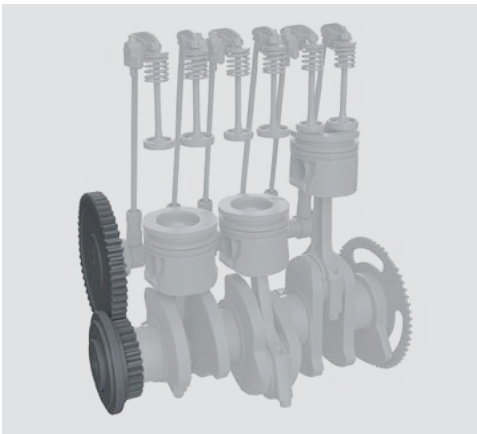


LESS MAINTENANCE

This much is clear: The greater the availability of your industrial trucks, the more productively you can work. We have taken this as a benchmark and reduced the maintenance required throughout the service life of our counterbalanced forklift trucks to an absolute minimum.

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 new industrial engine is particularly robust.
- Our Truck Health Monitoring enables comprehensive fault monitoring and faster fault localization.
- Symbols on the display alert the driver to errors and prompt them to refill the oil or washer fluid, for example. 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. It also ensures that attachments such as side shifters do not affect the residual capacity. 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

As standard, our counterbalanced forklift trucks are networked in such a way that it will be possible to diagnose errors remotely in the future. What does that mean in practice? With clear and detailed error codes, any wear and potential damage can be identified at an early stage. This means servicing and repairs can be carried out as soon as possible to prevent serious consequential damage. The wireless diagnosis also allows service technicians to take the right spare parts with them for repair, saving valuable time. Another benefit: The counterbalanced trucks can be serviced remotely and can be located anywhere in the plant using GPS. This means it is no longer necessary to search for trucks on foot: servicing 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 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 GmbH, a KION Group company, is a leading global manufacturer of forklift trucks and warehouse trucks, and a solutions and service provider for intralogistics. With a sales and service network that spans more than 100 countries, the company is represented in all major regions around the world. In the 2018 financial year, the Linde MH EMEA Operating Unit (Europe, Middle East, Africa) recorded a total revenue of roughly EUR 3.3 billion, with approximately 11,600 employees worldwide. Global sales of Linde forklift trucks in 2018 amounted to more than 135,000.

Linde – for your performance



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