

**TOTAL**  
WAREHOUSE

Linde Material Handling

*Linde*

As individual as your applications.  
Linde 388 series electric trucks.

E35P/600 H - E50P/600 HL  
Capacity 4,500 to 11,000 lb.







# FOR A SUSTAINABLE VALUE CHAIN

For Coca-Cola European Partners, sustainability is an integral part of the growth strategy. And in the Parisian suburb of Grigny – one of more than 50 Coca-Cola European Partners production sites – this was the impetus behind opting for a Linde forklift truck fleet. In addition to price, quality and service, Linde's forklifts also impressed customers with their low emissions, low fuel consumption and good ergonomics. The latter is particularly important because Coca-Cola also attaches great importance to the well-being of its own employees. As such, Linde's trucks help Coca Cola achieve its high sustainability goals more quickly.



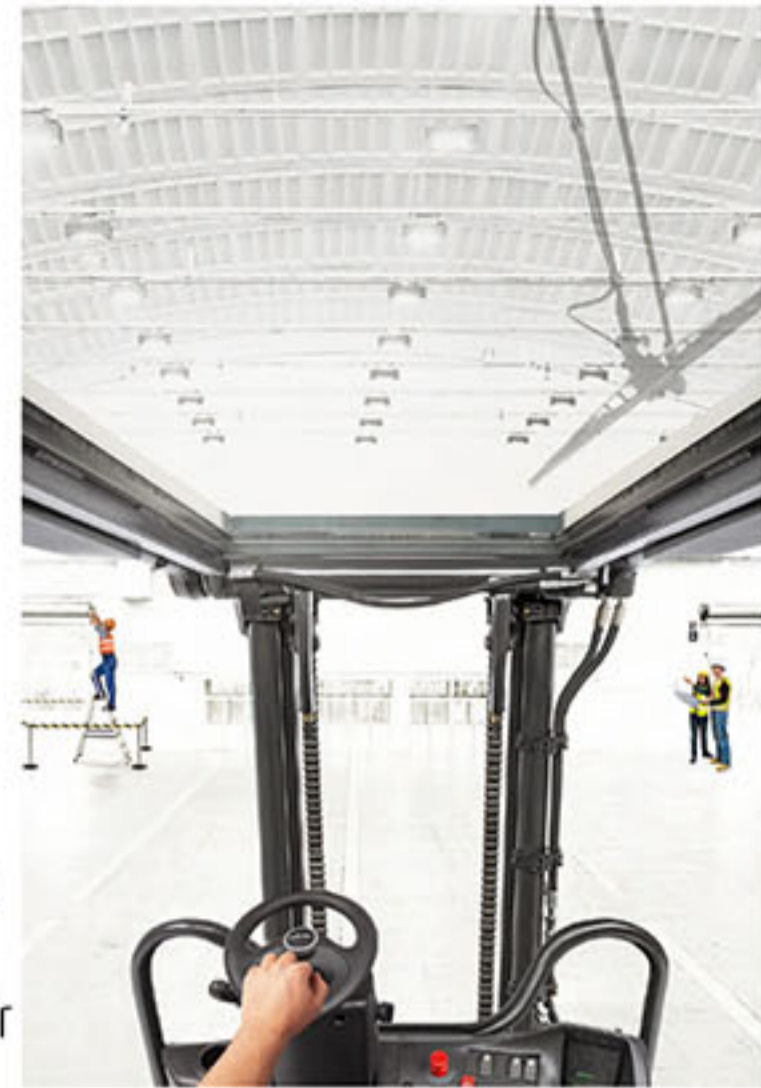
## Innovation

# A PERFECT VIEW IN THE REVOLUTIONARY ROADSTER

Employees walk through the warehouse while order pickers carry loads through narrow aisles: common practice in warehousing. In the midst of the hustle and bustle of logistics, the forklift driver has a perfectly unrestricted view of their environment. The work is completed quickly and safely. All because the driver is controlling a Linde Roadster – the first electric forklift truck without an A-pillar and featuring a reinforced glass roof, made possible by the ingenuity of Linde’s engineers.

They used the tilt cylinders of Linde forklifts, which are located on the upper side of the truck to reduce vibrations, as a connecting element between the cab roof and the truck, allowing them to do away with the A-pillar. In combination with the world’s largest panoramic reinforced glass roof, the Roadster offers unrivalled all-round visibility and enhanced safety.

This means that nothing stands in the way of efficient and safe working with loads from 2 to 3.5 tonnes.



### NO A-PILLAR

In removing the A-pillar, the engineers have delivered real innovation: their pioneering work allows for a perfect view of both traffic in the hall and the load.

### PANORAMIC ARMOURED PROVED GLASS ROOF

The Roadster’s optionally available panoramic reinforced glass roof represents a world first in forklift design.

### ACCESS

In the A-pillar’s absence, an integrated entry aid helps to facilitate access, while also serving as a spare mount for additional equipment.



# Linde 388 Series

A solution for any load

## APPLICATION-SPECIFIC FORKLIFTS



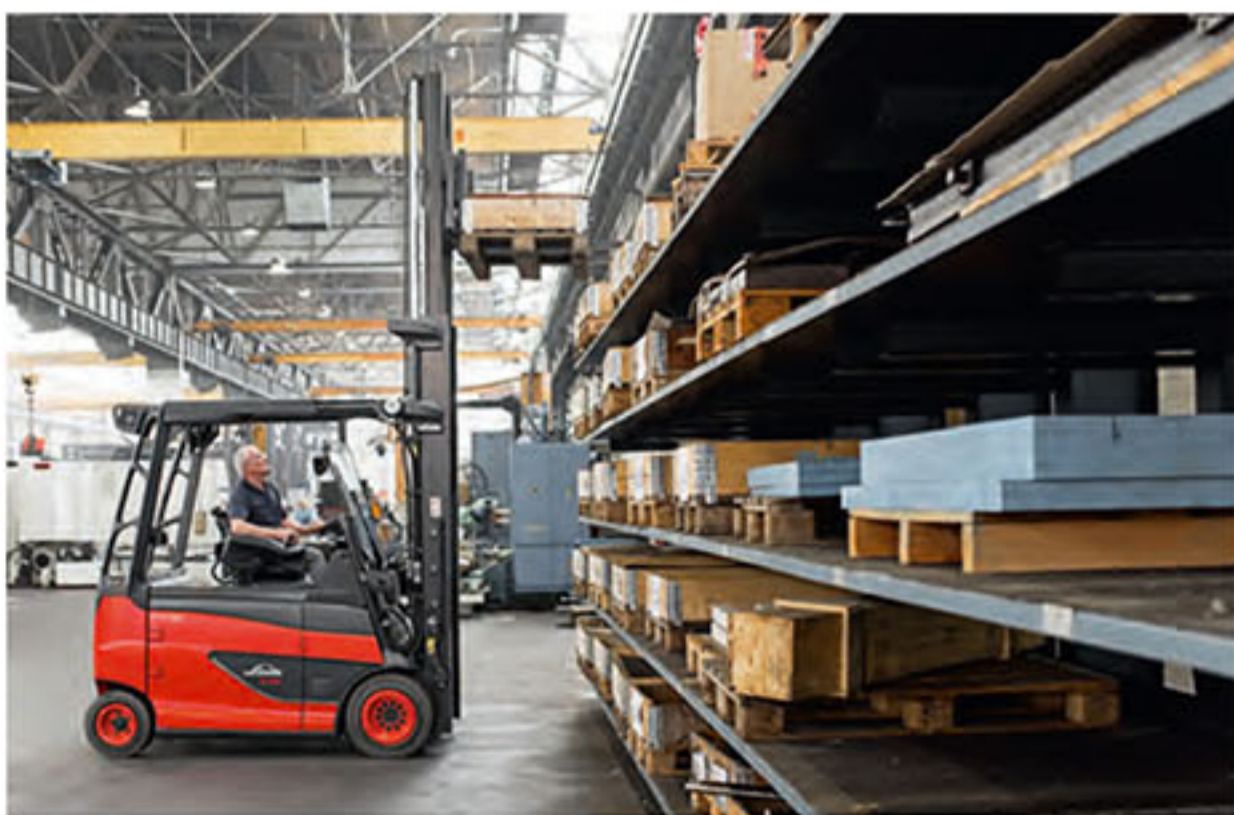
### KEEP AN EYE ON EVERYTHING, WITH THE BEVERAGE VERSION

Seating heightened by 350 mm allows for a better view of the load, which in turn enables the driver to recognise obstacles more quickly while still safely and efficiently carrying heavy loads.



### SUPERIOR HANDLING IN CONTAINERS

Linde offers forklifts suitable for containers in all load capacity classes. Thanks to their compact dimensions, they can easily drive on standard containers.



### UNOBSTRUCTED VISION WITH THE ROADSTER

The Linde Roadster is constructed without an A-pillar and has an optional panoramic reinforced glass roof, allowing it to offer unrivalled all-round visibility.



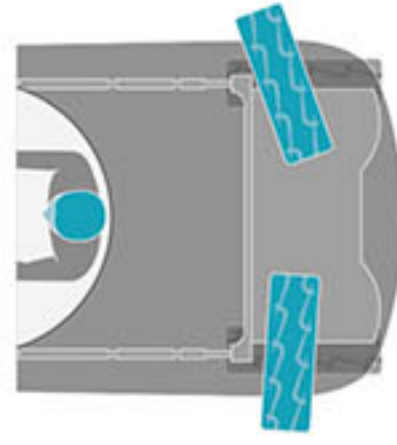
### SMALL DETAILS FOR LARGE LOADS

From a load capacity class of 2 tonnes upwards, customers can choose between two load centres. The larger load centre of gravity of 600 mm instead of 500 mm enables a larger residual load capacity.



Powerful and agile load handling

# DRIVE AND STEERING



## Oscillation axle

When it comes to axles, the oscillation axle is a classic, well-suited to a wide range of different forklift applications.

- stable against tilting due to high suspension point
- optimal low ground clearance due to large swivel range
- reduced tyre wear

### Models available:

E35/600H, E40/600H, E40/600HL, E40/600L, E45/600H, E45/600HL, E45/600L, E50/500HL, E50/500L, E50/600HL, E50/600L

The narrow aisle of a warehouse: there are only centimetres separating the shelves and the forklift. It precisely and dynamically turns on the spot, taking the load with it. In one fluid motion, it completes the transport to the HGV. Such manoeuvres are only possible with Linde electric forklift trucks with dual motor front-wheel drive and combi-steering plate axle. The unique combination of drive and steering, in line with the different requirements of the forklift truck, ensures that Linde trucks are agile and precise.

- dual motor front-wheel drive with traction control
- unique, patented combi-steering axle
- optimal manoeuvrability and precision





## Expertise in powerful drives

# POWER AND CONTROL – COMBINED

## DUAL MOTOR FRONT-WHEEL DRIVE

Linde electric forklift trucks use a powerful dual motor front-wheel drive as standard. The advantage is that the drive axle is actively controlled via the front wheels. All forklifts also have traction control. It distributes the power to both engines individually, allowing for optimum traction power even if a wheel is spinning on a slippery surface.

## ELASTIC AXLE SUPPORT

The frame and drive axle of the forklift trucks are connected with maintenance-free rubber-metal bearings. Equipped as standard, this material combination creates a damping effect in several areas. This improves driving comfort, as the bearings compensate for uneven road surfaces and reduce the noise level. At the same time, shocks are felt less strongly by adjacent components, meaning less stress is exerted on them.

## CS20 CONTINENTAL TYRES

Another element of the driving power of Linde electric forklift trucks is the CS20 tyres, developed in partnership with Continental. Its L-shaped tread pattern improves traction and reduces rolling resistance, while the closed shoulder flank ensures smooth running and less noise. The low rolling resistance is the basis for high mileage and low energy consumption.

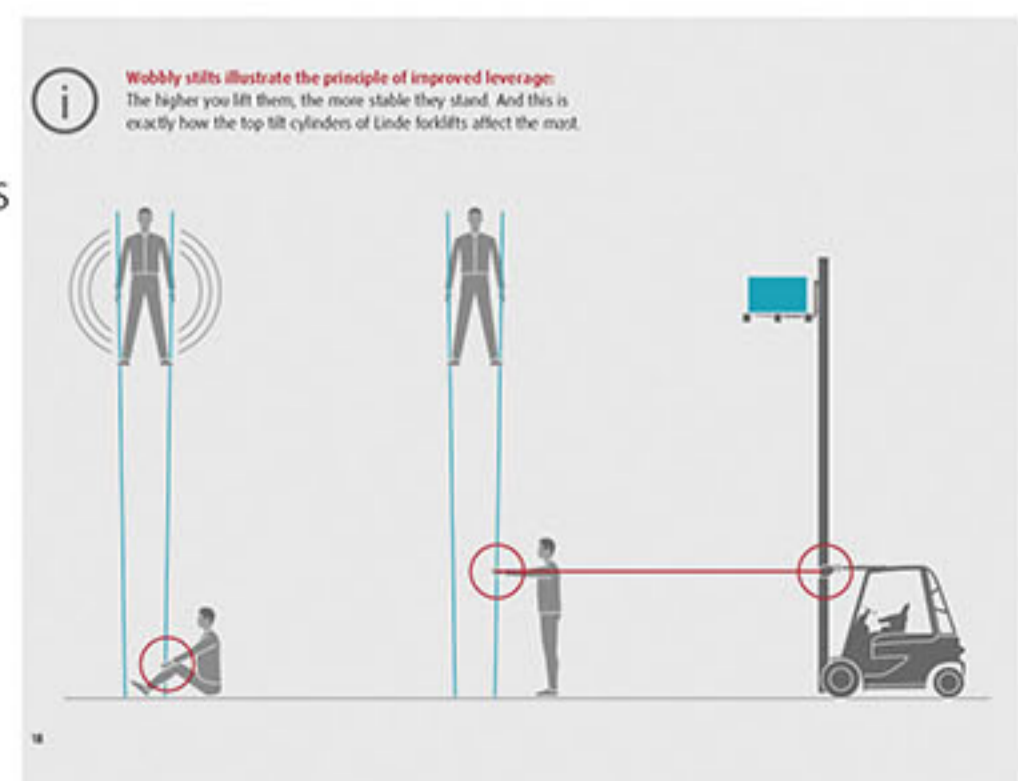


## Optimised for safe handling

# MAST

Five metres tall, 600 kilograms in weight: A forklift truck places its heavy load with millimetre precision, with only the faintest vibrations affecting the fully extended mast. Linde electric forklift trucks have a special mast design that makes load handling at great heights particularly safe. The tilt cylinders at the top of the mast provide greater leverage and thus greater mast stability, meaning loads can be lifted quickly and safely. Further mast features provide excellent visibility and improved handling.

- increased stability due to top mounted tilt cylinders
- electronic end position damping
- visually optimized construction
- attachments adapted to the truck ex works





## Shockproof and vibration-free

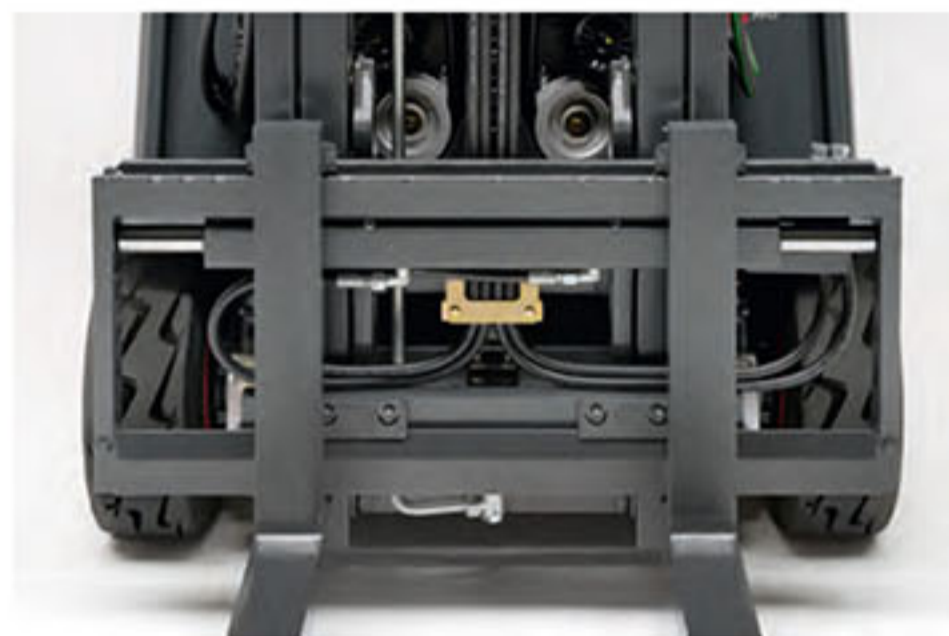
# THE ART OF PRECISE MOVEMENT

The condition of the mast is one of the most important factors for safe and efficient handling – one catered to by numerous equipment details in Linde electric forklift trucks.

## MAKE THE MOST OF LEVERAGE

In Linde electric forklift trucks, the tilt cylinders on the lower end of the mast are moved upwards so that they attach directly to the stable structure of the roof of the driver's cab. This ensures that forces are dissipated through the forklift truck design. The longer lever length also makes the mast stronger and more stable.

**The result:** Reduced vibration and torsion when stacking at great heights. The driver can work more sensitively, safely and quickly. The lower leverage forces also protect the material and thus reduce repairs and breakdowns. The construction also allows slimmer mast profiles that improve visibility. This innovation has a significant impact on safety, performance and efficiency of forklift trucks.



## INTEGRATED SIDE SHIFTER AND FORK POSITIONER

On request, Linde can integrate attachments such as side shifters and fork adjustment devices into the truck ex works. This means that the forklift trucks can lift the full load despite the additional weight of the attachments.

## ELECTRONIC END POSITION DAMPING

To make handling even safer and more comfortable, all Linde electric forklift trucks are equipped with electronic end-position damping as standard. It gently absorbs movement when lifting and lowering the mast, thus reducing jolts and noises as well as vibrations and torsions. This in turn increases handling stability, protects the material and reduces noise pollution for the drivers.



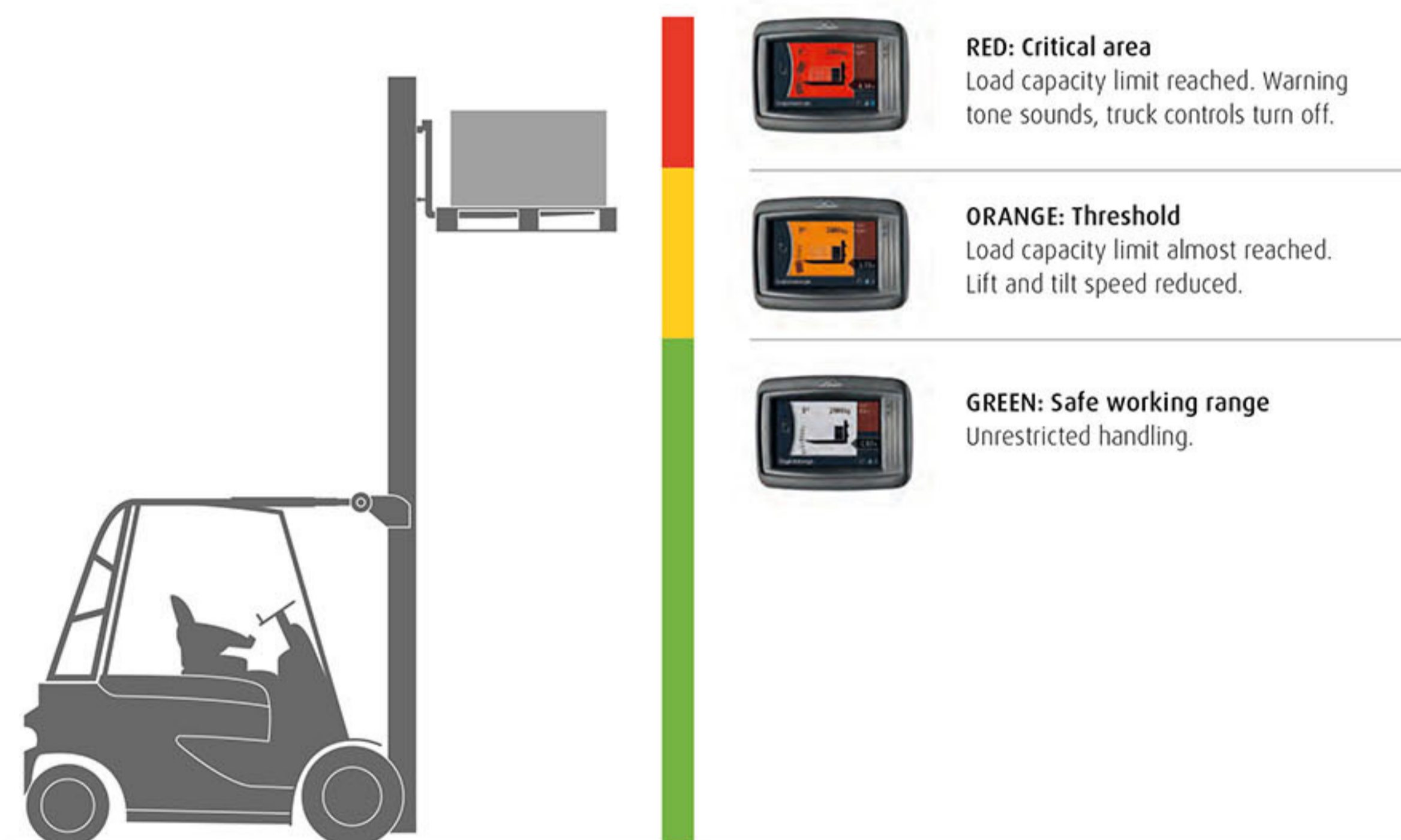
The truck that thinks for itself

# LINDE SAFETY PILOT

Human errors cause 95% of all workplace accidents in material handling. Frequently changing loads and parameters that are difficult to estimate, such as weight, centre of gravity distance and the exact lifting height, make it difficult for drivers to handle them in accordance with safety regulations. The intelligent assistance system Linde Safety Pilot provides reliable support for drivers. The system displays the most important parameters and actively intervenes in the handling of loads to protect people and the environment. The result: safe and efficient intralogistics.

## GREEN LIGHT FOR SAFE HANDLING

The colour display of the Linde Safety Pilot supports the driver with an intuitive traffic light system. The driver only needs to check which of three colours is present in order to know whether their load handling is safe. The diagram shows how the Safety Pilot warns and intervenes in different situations.



## ADDITIONAL ADVANTAGES OF THE LINDE SAFETY PILOT

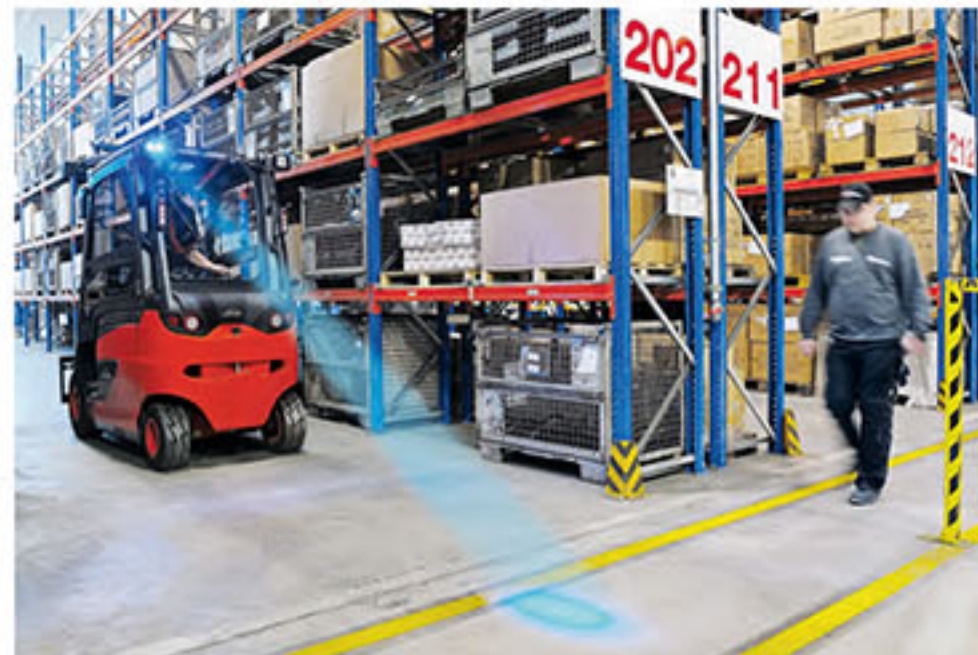
- ✓ **Pre-adjustable lifting height:** reduces damage to shelving and speeds up handling.
- ✓ **Lifting height restriction:** prevents collisions in doorways.
- ✓ **Lower limit:** reduced fork wear, especially on uneven ground.
- ✓ **Weighing and load add function:** prevents overloading of HGVs.
- ✓ **Adjustable speed limit:** reduces the number of accidents in high risk areas.



## Silent warning

# LINDE BLUESPOT™

The Linde BlueSpot™ increases safety in areas where people and forklifts work together in very close proximity. The LED light projects a blue warning point onto the floor, eliminating the need for acoustic signals that are often drowned out by other noise. This warns pedestrians and other forklift drivers of approaching forklift trucks, significantly increasing safety both in the driving area and at intersections where visibility is low.



## ADJUSTED TURNING SPEED

Sometimes things move very quickly in warehouses. The Linde Curve Assist ensures that the forklifts are still safe when turning, even during particularly risky driving manoeuvres. The speed while cornering is regulated depending on the steering angle.

## SAFE AT A STANDSTILL

Equipped as standard, the automatic parking brake ensures that the forklift truck holds its position securely on ramps and gradients, preventing the truck from rolling accidentally. When the driver presses down on the accelerator pedal, the brake disengages and the truck moves smoothly and without rolling back. If the brake is released accidentally or because of a fault, the truck brakes in a controlled manner.



## OPTIMAL LIGHTING

Linde uses robust, bright and economical LED technology in both its truck lighting and in the optional work lights. Thanks to an operating time of up to 20,000 hours, the LEDs are particularly reliable and economical. The light intensity of the LEDs provides optimum illumination of the working areas around the forklift truck, thus ensuring increased safety.

## DOUBLE SAFETY

The standard electronic control system is the heart of the Linde trucks. As such, the safety precautions here are high, too: all processors are redundant and monitor each other. If the system detects an error, it automatically switches off to prevent uncontrolled travel or lifting movements.



Optimally designed for the driver

# COMFORT AND ERGONOMICS



When unloading a load, the driver can control pinpoint-accurate lifting movements with their fingertips. Their arm leans on the arm rest which features integrated control elements of the Linde Load Control. Thanks to the rotatable driver's workstation, the driver has a clear view in the direction of travel when reversing, without needing to twist their body. This is how Linde's intelligent solutions and individually adjustable cabin components ensure an ergonomic workplace, forging a harmonious union between the driver and their ergonomic requirements. For forklift drivers, this means comfortable, fatigue-free and therefore efficient working. Plus, absences on health grounds will also decrease.

- ergonomic control layout
- efficient twin pedal drive
- sensitive control via Linde Load Control
- individually adjustable unit consisting of armrest and seat
- rotating driver's workplace





## Functionality and comfort in the driver's cab

# THE ERGONOMIC WORKSPACE

The driver is at the very heart of the workplace. Accordingly, all operating and display elements of Linde forklifts are ergonomically aligned with the truck. This means that they can be used with as little physical strain as possible and support precise, safe and comfortable control.

### Display

The display shows the driver all functions and safety parameters at a glance. It is designed for intuitive understanding and maximum visibility under all lighting conditions.

### Steering wheel and column

The particularly small and easy-to-grip steering wheel with a knob makes manoeuvring quick and simple. The steering column can be individually adjusted.

### Twin pedal drive

The patented twin pedal drive ensures particularly sensitive and precise control manoeuvres. It is not necessary to move the feet to switch between forward and reverse travel.

### Heater, air conditioning and radio

To ensure comfortable working conditions and depending on individual preferences, forklifts can be equipped with heater, air conditioning and radio.

### Integrated storage facilities

The forklift trucks have numerous storage compartments for working documents and the drivers' personal belongings, ensuring a more orderly, tidy driver's cab.





## Linde ergonomic driver's seats

# CUSTOM SEATING COMFORT

Every driver's idea of a comfortable workspace is different. Plus, the requirements may vary depending on the application conditions: is the floor uneven? What is the temperature like in the warehouse during the summer? How long are forklift trucks shifts? For this reason, users can choose the right driver's seat for them from a range of different seats and adjust it individually.



### Standard seat

The standard seat is suitable for the typical requirements of forklift truck applications. The surface is made of resistant and dirt-repellent PVC. A 60 mm suspension spring for drivers weighing up to 145 kg and the vibration-decoupled cab make the seat extremely comfortable even on uneven surfaces.



### Comfort seat

Compared to the standard seat, the comfort seat offers additional features for comfortable and fatigue-free working. Seat heating, a mechanical lumbar support and the shock-absorbing air suspension further increase seating comfort.



### Super-comfort seat

In addition to the features of the comfort seat, the super-comfort seat has air suspension for comfortable sitting. The back extension and the adjustable depth and inclination (from E35/600H) of the seat cushion provide individual adjustment options.



### Super-comfort Active

The Super-comfort Active offers a world first in the field of forklift trucks: active seat ventilation for the perfect seating environment. The activated carbon incorporated in the abrasion-resistant seat cover absorbs any moisture that may arise. This ensures that the seating area stays dry, which is especially useful on warm working days. The seat is available from model E35/600H and offers lasting comfort even under intensive workload.



## One unit: Linde Load Control and armrest

# PERFECT HANDLING AT YOUR FINGERTIPS

When it comes to load handling, millimetres count. This is why the sensitive Linde Load Control allows for intuitive control of the lifting movements at the user's fingertips. This allows even the heaviest loads to be moved quickly, precisely and safely. Linde Load Control can control the lift mast and up to three auxiliary hydraulics. All operating elements are integrated in the armrest, so that the arm can lean on the rest without fatigue during control movements. The armrest can be adjusted to any position horizontally and vertically to the driver. This ergonomic design helps to reduce driver downtime caused by overload, meaning drivers can still handle loads efficiently and safely even at the end of a working day.

### Benefits at a glance:

- sensitive controls at your fingertips
- fatigue-free, safe operation
- encourages healthy posture
- parallel lifting and tilting for maximum handling capacity
- integrated storage compartment



## Rotatable driver's workplace – relief for the driver

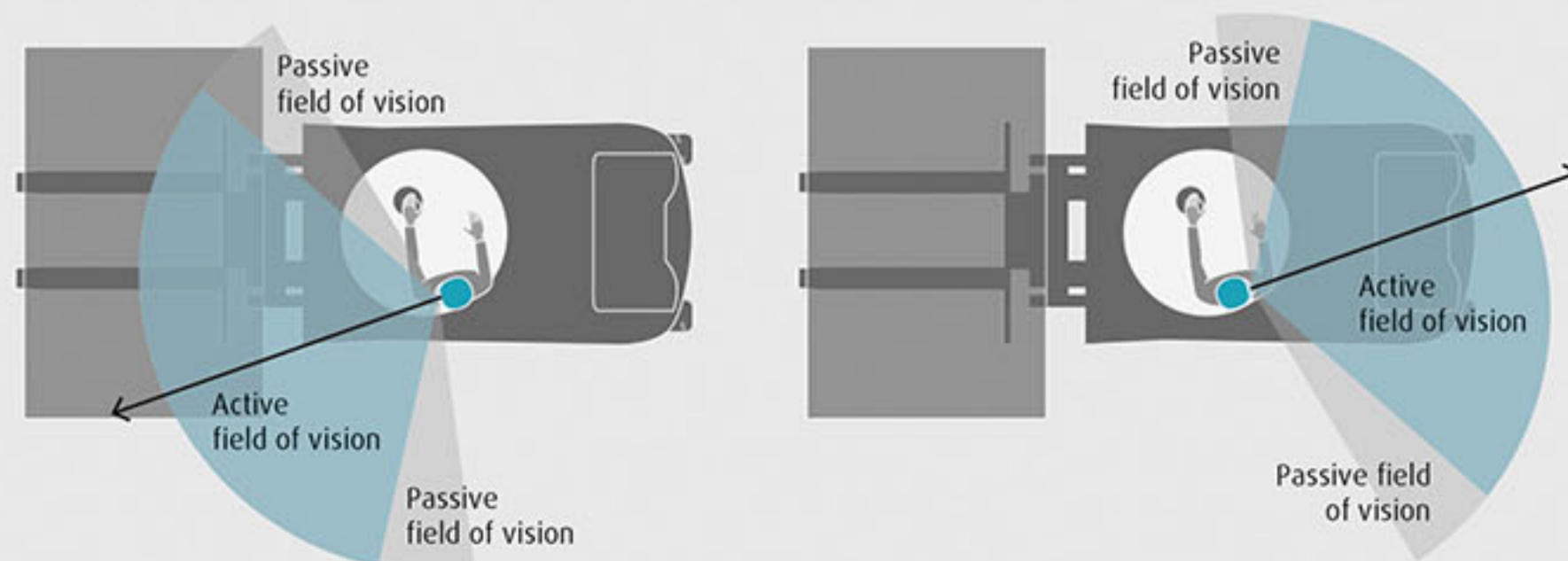
# CLEAR VIEW WITH PERFECT ROTATION

It is becoming all the more common for forklift drivers to have to drive loads backwards because the load restricts visibility. To do so, the driver must twist their torso in the direction of travel – a position which can damage the spine. The rotatable driver's workplace from Linde combines a clear view and ergonomic working conditions. Instead of the driver, it is the entire workspace that rotates. This improves visibility of the load and the route and relieves the driver's musculoskeletal system.

### Physical strain demonstrably reduced

Forklift drivers are particularly affected by back pain due to their often uncomfortable posture. According to a survey by the German Employer's Liability Insurance Association for Trade and Distribution of Goods (BGHW), the proportion of working time spent by drivers in an immovable seat in an overtightened back position is 43 percent on average. With a rotating driver's cab, body rotation is reduced to just eight percent, reducing lost working hours and the chance of errors due to fatigue.

### Field of vision at 70% seat rotation



Linde's rotatable driver's workplace provides an equally good view of the front and rear without the driver having to turn their back.



Intelligent power solutions

# ENERGY MANAGEMENT



High truck availability is essential for smooth operation. For electric forklift trucks, this means short charging times, long battery life and low maintenance. That's why Linde electric forklift trucks offer not only low energy consumption but also future-oriented solutions for smooth logistics: innovative technologies such as high-performance lithium-ion batteries, flexible battery replacement processes and practical solutions such as the Linde high-frequency on-board charger. Linde's energy systems enable continuous and efficient operation of electric forklifts with the best possible availability.

- minute-accurate remaining driving time indicator
- innovative high-frequency on-board charger for fast charging
- easy battery changing
- fast charging via lithium-ion batteries



## LITHIUM-ION BATTERIES ENHANCE ENERGY MANAGEMENT

While lithium-ion batteries have been used in small electronic devices for decades, the technology has only become available for heavy equipment such as industrial trucks in recent years. It offers numerous advantages for the operation of electric forklifts in terms of performance and service life. Thus, lithium-ion batteries increase the availability of electric forklift trucks. Especially in multi-shift applications the easy opportunity charging is a huge benefit for an efficient operation.



# ADVANTAGES OF LITHIUM-ION TECHNOLOGY



A major difference between lithium-ion batteries and lead-acid batteries is the increased efficiency and lower energy losses. The system efficiency is also increased due to the chargers. In addition, there are other general advantages and special advantages of Linde technology.

## GENERAL ADVANTAGES



**Short and fast interim charging:**  
battery can be charged during short breaks, resulting in higher truck availability.



**Reduced emissions:**  
no leaking of hazardous battery gases and acids.



**No more battery changes:**  
save time and cost as spare batteries and battery charging areas are no longer necessary.



**Maintenance-free operation:**  
no cleaning or filling with water required.

## ADVANTAGES EXCLUSIVE TO LINDE

In addition to the general advantages of lithium-ion technology, the Linde solution offers further advantages: The entire system – forklift, battery and charger – is CE-compliant. In addition, the practical charging via the rear makes the process particularly easy.

CAN bus communication adapted to the application ensures harmonised, complete system integration. This means that the performance of the truck can be adapted to individual requirements and a constant power supply is provided.

The multi-level safety concept offers safety features at the cell, module and battery trough level that are tailored to the system. As such, Linde offers the highest safety standards in the market.

A crash-tested tray with 25 mm thick steel protects both the battery and its surroundings.





# Cost-effectiveness calculation finds in the favour of Linde trucks

## PERFORMANCE, BY THE NUMBERS



It has been proven through a detailed cost-effectiveness calculation: choosing Linde electric forklifts is a decision that pays off. Despite a higher purchase cost, the example shows that increased productivity means that companies can save approximately EUR 24,000 after just 60 months. This calculation is based on the average operating hours required for the typical loading and unloading of an HGV.

### Base data

	Linde E25L	Competition
Duration	60 months	60 months
Days in operation per year	220	220
Operating hours per year	1,000	1,235
Energy cost per kWh	USD 0.17	USD 0.17
Staff costs per hour	USD 22.03	USD 22.03
Hourly service rate	USD 2.20	USD 2.20
Net purchase price	USD 38,554.25	USD 33,046.50
Residual value	20%	15%

	Linde E25L	Competition
Time to load and unload an HGV	40.4 min	49.9 min
Consumption per HGV loaded and unloaded	2.94 kWh	3.48 kWh

### Cost per HGV

	Linde E25L	Competition
Total cost per HGV	USD 21.09	USD 24.67
Service cost per HGV	USD 1.49	USD 1.83
Energy cost per HGV	USD 0.62	USD 0.74
Financing cost per HGV	USD 4.16	USD 3.78
Staff cost per HGV	USD 14.85	USD 18.33
Difference	—	USD 3.58
Cost per pallet	USD 0.37	USD 0.44

## OVERALL RESULT

	Linde E25L	Competition
Total cost for 60 months	USD 156,704.75	USD 183,309.40
Saving per year	USD 5,320.49	—
Saving over 60 months	USD 26,604.65	—
Break-even	12.43 months	—



Support for day-to-day logistics

# SERVICE



After the purchase of a forklift truck, Linde Service supports companies in making the operation of the truck smooth, safe and efficient: from replacement forklift trucks, optimally combined maintenance schedules and improved cost-effectiveness, through to driver training and regular services. These include, for example, the prescribed safety tests, the FEM 4004 test and the annual charging device test.

The services which focus on technology, equipment, safety and efficiency of your electric forklift trucks ensure the best possible availability and performance.

- Comprehensive service with 8,500 service technicians and 700 locations
- Rapid assistance with the emergency service
- Centralised replacement parts warehouse delivers worldwide around the clock
- Maximum truck availability and operational safety
- Guaranteed conformity with legal requirements
- Consistent minimisation of safety risks
- Predictable and transparent costs for maintenance and service
- Increase in resale value



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