



# EFFICIENCY UP, COSTS DOWN

As a logistics professional, you know all too well: There is hardly any other process so crucial to productivity, efficiency and profitability as manual picking. At the same time, hardly any other process offers so many optimization opportunities, beginning with the selection of an order picker tailored to your needs.

Which is why Linde Material Handling offers you not only the broadest range of trucks worldwide for horizontal and vertical man-to-goods picking at a height of up to 12 meters; but also allows you to choose from the most diverse truck models, configurations and equipment options. That means your individual requirements are met as precisely as possible. Of course, you and your employees benefit from Linde's particular attention to excellent ergonomics and safety. After all, at the end of the day your company seeks to: increase productivity and decrease costs.

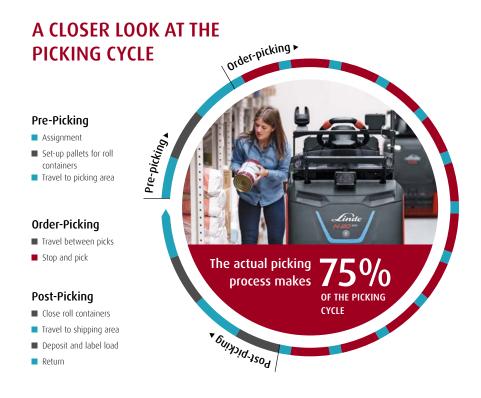
→ www.linde-mh.com

# ATTENTION TO DETAIL. PERFECTED PROCESS.

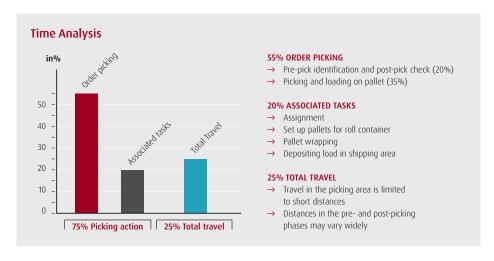
Confirm the order, drive to the rack, remove product, load on the product carrier and then repeat. Manual picking, whether at ground or height level, continues to be as important to logistics as the rack and warehouse. Picking is time consuming, piecemeal and physically demanding for employees. Yet it offers manifold possibilities for increasing efficiency.

A look at the numbers shows that: A good 75 percent of the time spent per picking job is exclusively devoted to stop-and-go work at the racks. And because this action is repeated over and over each day, even the smallest details ultimately lead to enormous performance differences. A crucial, if not the most important factor, is the order picking truck and its optimal suitability to the respective process.









How easy and precise is it to control? How quickly and conveniently can the order be executed? Can multiple pallets be simultaneously or sequentially loaded and unloaded? How much physical effort is required? How does the machine handle goods at the second level and higher? And last, but not least: How safe is the employee when driving in the warehouse? Which is to say that: an order picking truck is much more than merely a means of transport. The better they support each individual step and the safer they handle, the more focused an employee can be in executing core tasks. Which ultimately means higher efficiency. It is precisely this principle that Linde consistently translates into reality when developing order picking trucks.

#### YOUR NEEDS - OUR SOLUTIONS

## SOUGHT AFTER, FOUND

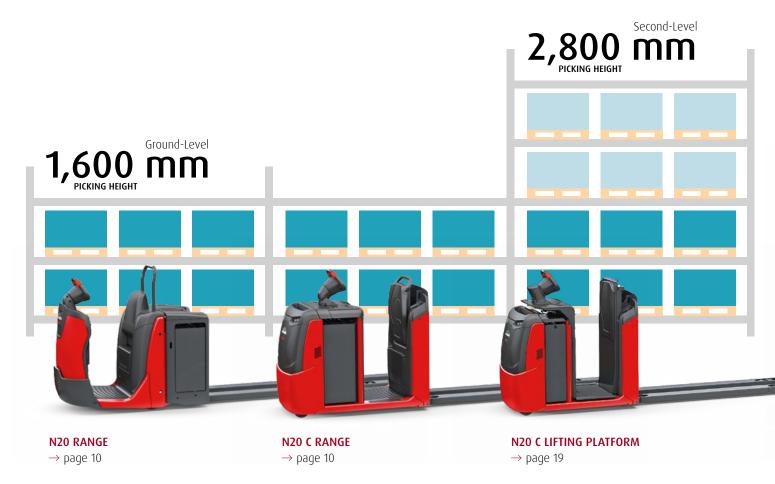
There's no question about it. Even if the picking process itself is always the same, a wide range of different factors must be considered from warehouse to warehouse.

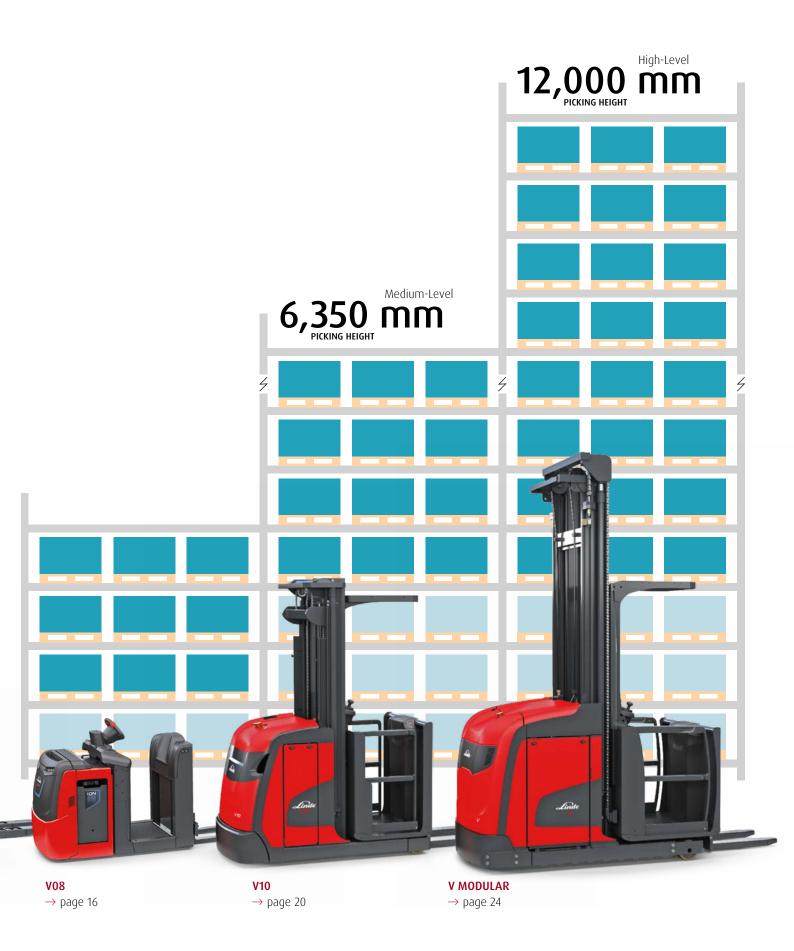
This includes the specific modalities concerning the flow of goods, such as the type of good, the necessary picking frequency and the number of pallets on which the good is loaded. Spatial conditions also play an important role. How is the rack system constructed? Are the aisles wide or narrow? How long or short are the transport routes between the staging and picking area?

Each of these aspects ultimately influences which truck is optimal for you. The Linde Material Handling portfolio features the custom-tailored solution you need. From ground-level order pickers with different concepts to trucks for occasional vertical picking and vertical order pickers that efficiently operate at heights of up to 12 meters.

Find your Order Picker: → www.linde-mh.com/en/Products/Order-Pickers

Occasional PickingFrequent Picking





# EXCELLENCE IN ALL DISCIPLINES

From home improvement stores to food wholesalers, from the automobile industry to contract logistics – everywhere where goods and products are manually picked, the following applies: High productivity is key. It is precisely for that reason that we consider all factors that contribute to this ultimate goal when we develop our order pickers. This takes the form of carefully thought out features shared by different models that allow your employees to work as ergonomically, safely, efficiently and effectively as possible.



#### **ERGONOMICS**

Ergonomics is the basic requirement for focused, effective work, not to mention a primary focus at Linde. And our ground-level and vertical order pickers are no exception. Low entry step height, for example, allows employees to easily get in and out of the truck. And decoupled or driver platforms with suspension dampen vibrations, while the user friendly steering elements require only a minimum of effort to operate. The height of the Linde steering wheel is also adjustable. It allows even inexperienced drivers to intuitively operate the machine, thus reducing learning time. The rubber surface ensures a good grip and the driving switch for driving forward and in reverse can be operated on both sides with the thumbs or index fingers. Available for the Linde N16/N20-25/N20-25 C/V08.



#### **SAFETY**

Safety is paramount in work where employees use their entire (body-) effort. Our order pickers' standard and optional assistance systems ensure work can be done smoothly while avoiding accidents. One of these systems is the Linde Curve Control, which automatically reduces the speed of the truck when cornering. Linde BlueSpot™ has proven itself again and again as a solution to negotiating junctions where visibility is poor or when exiting narrow rack aisles, thus offering your company considerable added safety. This feature beams a blue spot of light onto the hall floor, warning other employees that a truck is approaching.



#### **EFFICIENCY**

Manual picking is one of the most labor and cost intensive processes. Each second that your employee can pick faster will pay off. This begins with driving around the warehouse. Our order pickers reach top speeds of up to 14 km/h, while their excellent maneuverability also reduces driving time. And one must not forget about the employee.

Order pickers precisely tailored to warehouse-specific pick requirements make work substantially easier and significantly boost picking rates. There is no need to compromise when selecting an individually fitting order picker. We offer trucks suitable for virtually every picking scenario, including a large selection of equipment and options.

#### **PERFORMANCE**

Linde order pickers are available with modern lithium-ion technology, which not only increases the availability of the truck, but also makes operation more efficient, safe and sustainable. Trucks using Linde Li-ION batteries can basically be used in all areas. Thanks to convenient interim charging, these batteries offer a clear benefit in intense multi-shift applications without the need for long machine downtimes. Linde Li-ION batteries are also far less sensitive to temperature than their lead-acid counterparts. To ensure maximum flexibility, a variety of battery capacities are available in combination with different charging performance levels.

SHORT CHARGING CYCLES



FULLY CHARGED IN ONLY 40 MINUTES









#### N20/N20 C

## STRONG SIBLINGS

You need a high-performance ground-level order picker for conventional man-to-goods applications that enables your employees to work quickly, safely and ergonomically. We know: In order to achieve this goal, it is crucial to closely consider the individual conditions surrounding your picking processes. That's why we have developed two truck variations in the N20 and N20 C series, one with the driver's platform in front and one with the driver's platform in the conventional position behind the battery.

#### N20/N20 C

#### TWO CONCEPTS WITH MULTIPLE VERSIONS

The models in the Linde N20 and N20 C series are precisely adaptable to your application needs and enable you to remain completely flexible in addressing the requirements of your warehouse and the needs of your employees. They are ideal for ground-level picking and route transport.

#### BETTER VISIBILITY; SAFE OPERATION

This is possible due to a truck architecture that is unique on the market. With the N20, the operator stands in front of the battery rather than behind it, as is the case in the conventional design. This gives the operator an unhindered view of what is in front, allowing for faster, safer operation. When driving out of a rack aisle, the employee will see an approaching truck sooner and does not have to waste time inching forward.

#### BETTER DAMPING; HEALTHIER EMPLOYEES

The driver's platform on the Linde N20 features full suspension, reducing human vibrations and decreasing strain on the operator by 30 percent. A sophisticated damping technology absorbs vibrations and shocks that would otherwise have measurable negative effects on the performance and health of employees.

#### WHEN IT GETS TIGHT...

...The design principle of the N20 series also boasts advantages due to its maneuverability. Because the driver's platform is in front and the wheelbase short, the truck can more easily maneuver through busy aisles and drive around obstacles. And the operator is also protected by a heavy-duty front bumper made of steel.



The powerful 3 kW three-phase motor is crucial for the handling tempo. It accelerates the N20 Series to a top speed of 12 km/h with a load or 14 km/h without. Driving time to and from the staging area is thus reduced to a minimum.



N20

#### **DIVERSITY WITH ADDED VALUE**

The wide range of different truck versions for mainly ground-level picking and occasional picking in the second level offers the ergonomically best solution for each individual picking requirement.

#### 1 PALLET PICKING

While using the Linde N16 Li or N20 C L, an operator can lift a load up to 790 millimeters, ensuring that goods are always placed on the pallet at the most ergonomic height.

#### **2 PALLET PICKING**

If two different customer orders need to be picked directly after each other, the double decker version with extended support arms is recommended. Picking two jobs becomes even more efficient with model versions featuring extended forks or scissor-lift function.



## N20/N20 C INTERCHANGEABILITY

The N20 and N20 C ground-level order pickers boast many distinctive features to meet individual needs. And yet both series have interchangeable integrated features. That translates into high operability, easy serviceability and top performance.



#### AT YOUR FEET

Even though operators can get on the order pickers from both sides, it is often simpler not to get on the truck when traveling short distances. For these situations, the N20 and N20 C have a pedestrian function allowing the operator to walk beside the truck. Push buttons mounted on both sides of the truck allow the operator to control the truck while walking beside it.

#### **REMAINING FOCUSED**

To guarantee minimum distractions, the multifunction color display is deliberately situated beneath the steering wheel. The clear layout of the display allows your employees to easily read the most important information, from battery charge status to service notifications.



#### IT DOESN'T GET MUCH EASIER THAN THIS

The ground-level order pickers from Linde Material Handling ensure accelerated material flows. The 3 kW three-phase motor quickly accelerates the truck to a top speed of 14 km/h, meaning even longer routes in the warehouse are covered quickly. Employees can also use only one hand to operate the intuitively designed, non-slip Linde steering wheel and can easily reach all driver features, including the horn (even in reverse). The intelligently designed steering wheel also reduces learning time.







#### **EXCELLENT ERGONOMICS**

To work ergonomically, footpaths between the driver platform and pick goods should be kept as short and even as possible. That's why the N20 and N20 C ground-level pickers feature a particularly step height of only 130 for N20 C or 137 millimeters for N20, making it easy to step on and off the truck. The broad, U-shaped design also facilitates access from both sides. For longer distances or waiting time, the driver platform is also equipped with a foldout seat and additional comfort is offered by a padded knee protection.

#### **ALWAYS IN MOTION**

To reduce servicing to a minimum at full productivity, the N20 and N20 C series boast a simple design, with parts requiring little maintenance. And the first service check is required only when the truck has been in use for 1,000 hours. The service technician has easy access to all main components and can easily open the technical compartment. Truck data can be read via a CAN bus connection on a notebook.







#### V08/N20 C Lifting Platform

## NEXT STOP, NEXT LEVEL

Basically, warehouses are like wardrobes. Both must offer as much space as possible and ensure that the most commonly needed items are easily accessible. What you need less frequently, in the case of warehouses, for example B and C goods, will find its place at the second level. No matter whether you only need to pick ocassionally or frequently at such heights up to 2.8 meters: In our portfolio we definitely have the right truck for your individual application.

#### V08-01/V08-02

#### THE FIRST CHOICE FOR THE SECOND LEVEL

Efficient picking always means being able to reach goods as easily as possible. And, with a reach of up to 2.8 meters, that is precisely what our V08 series of vertical order pickers allows your employees to do. The driver platform and load section are both lifted up to 1.2 meters above the ground. Which is to say that: the operator can conveniently take goods out of the rack, place them on the forks and immediately drive to the next pick position. To optimally support good flow, you can choose between two different versions of Linde's V08.





#### V08-01: FOR BULKY ITEMS

On the V08-01, the forks are directly attached to the driver platform. Thus, employees have direct access to the load section and can push bulky or heavy products directly out of the rack on to the pallet or roller container. The Linde V08-01 can be ordered in two versions, with short arms and 700 kilogram loading capacity or with longer load arms and 1,000 kilogram carrying capacity.

#### **V08-02: FOR SMALL ITEMS**

In order to make work easier for your employees especially when handling small goods, the V08-02 features an additional lifting function. This allows the driver to lift and lower the forks independently of the driver platform. That means the forks can be adjusted to a comfortable height when loading or unloading. The carrying capacity of the additional lifting function is 800 kilogram at 0.5 meter load center.

#### DIFFERENT CONCEPTS, COMMON FEATURES



#### **FAST GOODS**

Depending on the truck version, the Linde V08 reaches a top speed of up to 10 km/h, even with a load, thanks to the high-performance 2.3 kW motor. Yet the precise and self-centering steering keeps the truck stable at all times. The V08-02 also features a practical pedestrian function: Push buttons on the outside of the vehicle enable the driver to move the order picker whilst walking alongside the truck. This allows them to maneuver the vehicle conveniently forwards and backwards without having to re-enter the vehicle for short distances.

#### **EASY GOING**

For the first and second level: During a shift, employees have to get on and off the truck countless times. In order to reduce physical effort as much as possible, the step height was set at precisely 145 millimeter. The truck features intelligently located and generously dimensioned storage departments, allowing for streamlined work. Additionally, the V08 series trucks can be outfitted with countless additional brackets to accommodate scanners, clipboards, foil rolls and other items.

#### SAFE IS SAFE

To avoid truck accidents, the Linde V08 adjusts the braking performance to the current load and automatically reduces the speed on corners. If the operator gets off the platform or presses the emergency switch, the truck automatically brakes. In addition to these safety assist features, the developers at Linde have also included many analog features. The best example is the non-slip rubber surface on the floor of the driver platform. Other features that are optional include an additional handrail for added stability when driving in reverse on V08-01.







#### The V08-02 driver platform can be equipped with side guard (upper right), which further protect the driver from falling. The entire floor surface of the driver platform additionally functions as a dead man switch (below). The Linde OptiLift lift-mast control simplifies handling via smooth, vibration-free lift



Ergonomics is also very important with the Linde V08. For short distances, the driver can use the pedestrian function and comfortable drive the order picker from outside (upper left). Practical: Low step height for getting on and off the truck (upper right) and secure storage options (right).







#### N20 C LIFTING PLATFORM

#### PRACTICAL ALL-ROUNDER

The Linde N20 C with a height adjustable driver platform is recommended for occasional picking at the second rack level.

This feature allows operators, when necessary, to reach parts and goods at a height of up to 2.8 meters. Picking can be done, depending on the fork length chosen, with one or two paletts lengthwise or even with roll cages. The height adjustable driver platform is optionally available for almost all N20 C models. Optimal combinations can be selected depending on the requirements:

- One pallet at the operator level (N20 C L)
- Two pallets at the operator level (N20 C LX)
- One pallet at the operator level, and when it is finished, the second pallet can be loaded (N20 C LoL)
- Two pallet levels for double picking or one at the operator height for conveniently setting down the pick (N20 C D)







**V10** 

# TOP PERFORMANCE AT A HIGH LEVEL

Whether at the ground level or at a challenging height of 6.35 meters: The Linde V10 vertical order picker and its countless equipment options allow you to precisely meet your individual requirements. Apart from numerous lift motors, chassis, lift-masts, batteries and driver cabins, you can obtain our safe and ergonomically designed trucks as free roaming versions or as a guided version for narrow aisle applications, where trucks are guided mechanical or inductive. The V10 also makes it in wide aisles to shorten your travel distances by placing A-goods in a wider and deeper range and on a higher level right at the beginning of the aisle

#### **V10**

#### **COMPLETELY STATE OF THE ART**

What applies to your logistics should also apply to your order picker fleet. The Linde V10 leaves no wishes unfulfilled when it comes to the variety of options, user friendliness and safety technology. And our vertical order picker is just as uncompromising when it comes to performance, boasting a maximum carrying capacity of 1,000 kilogram.



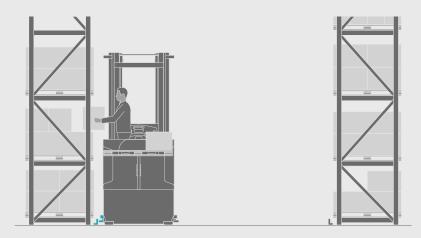
#### **EVERYTHING UNDER CONTROL**

Thanks to the ergonomic control panel, employees are able to precisely, intuitively and simply control the truck from the get go and the operator is instantly familiar with the truck. A dead man switch and two hand sensors prevent misuse or operator error. The truck will only move once the driver has both hands on the control panel. Two-handed operation reduces the risk of an accident to a minimumand is a standard for guided trucks. When used in free-roaming applications, where the operator picks goods also from ground level and the truck thus only has to cover short distances, the optional pedestrian control makes work significantly easier.

#### PACKED WITH POWER

The V10 vertical order picker features powerful three-phase motors: Each of them produces enough power for the truck to drive and lift at the same time. This allows the operator to reach the desired rack position much more quickly. The use of energy recovery when lowering also means the maintenance-free motors are very economical.





#### PERFECTLY POSITIONEND

The optional side guide rollers for the free roaming versions of the V10 not only make order picking easier but also much safer: on one hand, they allow the operator to position the truck as close as possible to the rack, thus facilitating the picking process. At the same time, the start rail prevents the operator from manoeuvring into the rack and causing accidents that are as dangerous as they are expensive.

#### **CLEVERLY DESIGNED**

The V10 cabin offers employees not only generous room to move, but also effectively protects them from vibrations thanks to sophisticated damping technology. The center of the cabin floor has robust damping to reduce human vibrations to a minimum on the driver platform. For model versions with supplementary lift, the low railing to the fork simplifies placing the goods on to the pallet. Additionally, the V10 boasts various spaces to accommodate a radio, fan or lights.



#### **ALWAYS SAFE**

Electrically monitored side barriers offer the operator additional safety. If these are open at a platform height of over 1.20 meters, the truck stops automatically lifting. Just as effective is the optional safety system that actuates when the cabin is lifted. Or the truck is cornering. The Linde Curve Assist slows the truck automatically down according to the steering angle and prevents the truck from tipping over.



#### Service the smart way

All truck components are easily accessible for service technicians. Technicians can also read and check all data on a laptop. Battery changing is done to the side using a removal rack, fork lift or by crane.



#### Anti Lift Collision Sensor

A sensor mounted on the over head guard stops lift movement when there is the danger of colliding with the infrastructure above the truck such as the hall ceiling or sprinkler system.



#### Tilting barriers

If the driver leans on the barrier, it folds out to the side. This allows the employee to more easily approach the rack and perform the picking task.



High Level
Frequent Vertical Picking



**0 – 1,200 kg** max. load capacity



**0 – 12,000 mm** max. picking height



**0 – 10,160 mm** max. lift (h3)



0 – 13 km/h Performance

#### 2 MAST VERSIONS Excellent visibility for safe operation Standard masts have a max. picking height up to 10,360 millimeters Triplex masts have a max. picking height up to 12,000 millimeters **10 CABIN WIDTHS** Ranging from 900 millimeter to 1,800 millimeters For great freedom of movement and plenty of room for picking. For best possible adaptation to your aisle widths **8 BATTERY SIZES** → 5 versions of lead-acid batteries and 3 different Li-ION batteries Ideal battery capacity depending on ser-**4 FORK CARRIAGES** vice life and intensity of use/application Effective picking depending on Optimal charge times for more efficiency goods groups Supplementary lift or accessible solution possible With protection cage direct picking on the pallet **3 LIFT-/DRIVE MOTORS** Needs-based selection according to application: 24 volt or heavy duty option with 48 volt Maintenance-free motors for efficient long-term use Time-efficient maintenance service schedule thanks to simple service access **8 CHASSIS WIDTHS** Exact solutions for different aisle widths High stability, more safety Heavy duty chassis design prevents downtime

#### V MODULAR ADDITIONAL EQUIPMENT

#### **BRILLIANTLY CONFIGURED**

Thanks to the modular system, our V models can be perfectly configured to meet your individual needs, even for a picking height of 12 meters. The truck's standard equipment already allows picking tasks to be done as efficiently as possible. To further increase performance, we also offer diverse special equipment to increase ergonomics, safety and handling.



#### **ALL SET UP**

Capacity

in kg

Everything is where it should be: The Linde V modular allows you to individually configure the work environment for your employees, for instance storage compartments, printer interfaces, LED lights and fans as well as 12V sockets for charging smart phones, tablets, etc.

#### **LEAN ON ME**

Working at great heights is just as simple and safe with the V modular as at the ground level. Thought out features such as the low railing and the optional tilting barriers make it easier for the operator to remove the goods from the rack. If the operator leans on the barrier when picking, the barrier folds out approximately 100 millimeter, allowing easier access to the rack. The tilting barriers effectively extend the order picker's reach by about 50 centimeter.



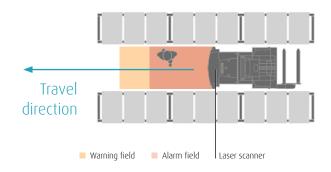
# Picking height in 1,000 mm 12 10 1,000 kg 1,100 kg 1,200 kg

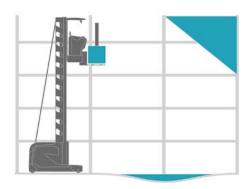
### TECHNOLOGY THAT THINKS ALONG

Linde System Control (LSC) ensures faster handling and greater safety. The standard, load and weight variants within the assistance system assist the driver by adjusting speed and optimizing driving behavior depending on lift height, load recognition and load weight. Standard equipment is the automatic reduction of the driving speed with raised platform (LSC 3.0). A speed reduction with weight-and load-dependent speed profiles for lifting and driving can be ordered optionally. The Linde Curve Assist is included in the LSC as well.

#### **PLAYING IT SAFE**

The optional Personal Safety Equipment monitors the truck in all directions and stops it whenever a person crosses the route or an obstacle is detected. For guided applications the V truck must be equipped with a personal protection system in Germany, Austria and Switzerland. This does not apply for other countries.



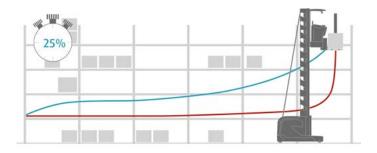


#### **CLEVER COMPANION**

The optional Linde Aisle Safety Assist (ASA) allows you to effectively avoid collisions with the infrastructure of the warehouse, as well as damage to the truck, goods and workplace. The ASA is oriented on RFID tags installed in the floor, or on bar codes mounted on the rack stands. This allows the truck to continuously determine its position within hte aisle. At the same time, the height sensor detects the height of the trucks contures. The truck control thus knows the exact position and current height of the truck at all times. The order picker then automatically reduces truck functions such as speed and lift height at identified obstacles.

#### PRODUCTIVELY CONNECTED

Optimized driving along the fastest route, with up to 25 percent time saving: Using the optional Linde Warehouse Navigation, the truck receives transport orders from the Warehouse Management System (WMS) after the system has identified the truck's position in the warehouse as well as the lift height. Then it guides the truck to the desired pallet position. The driver merely has to operate the driving functions.





#### **ALL AT A GLANCE**

Optimized order picker fleet utilization: while using the optional Linde connect fleet management system, you can network your trucks so that all relevant data can be monitored. The cloud-based version "connect: cloud" allows employees to also access the application and all fleet data from anywhere. This offers you the perfect basis for highly efficient operational planning.



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

Drawing on over 100 years of experience in providing material handling solutions to customers in virtually every industry, we help our customers to optimize their entire material handling process. Our experts analyze all workflows from goods-in to goods out and together with the customer they create solutions which fully meet their individual requirements. In doing so, Linde guarantees smooth implementation, reliable commissioning and responsive service.

For more information visit: → www.linde-mh.com

