

MAKING LIGHT WORK OF HEAVY LIFTING

The Linde H100 - H180 Heavy Trucks



“The **Linde H160**, adapted for use in the foundry, is the only heavy truck that has been able to meet our handling, economic, and heat resistance requirements. And it’s now done so for over 10,000 operating hours.”

Pavel Straszak, CEO,
Bohemia Rings s.r.o., Czech Republic



“We have been using **the Linde H160** for five years. It runs like clockwork. For us, the major advantage of the heavy truck is its hydrostatic drive. It allows us to keep our fuel consumption really low, while also providing extremely precise load handling.”

Jan Frycklund, VD,
Norrlands trä, Ålandsbro, Sweden

“**The Linde H160** is a real workhorse. Despite the harsh climate here in northern Sweden, it never breaks down. It keeps going from the start of the shift at six o'clock in the morning until the end of the shift at half past three.”

David Hellberg, Head of Production,
Norrlands trä, Ålandsbro, Sweden



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



1. Start App
2. Capture symbol
3. AR content starts

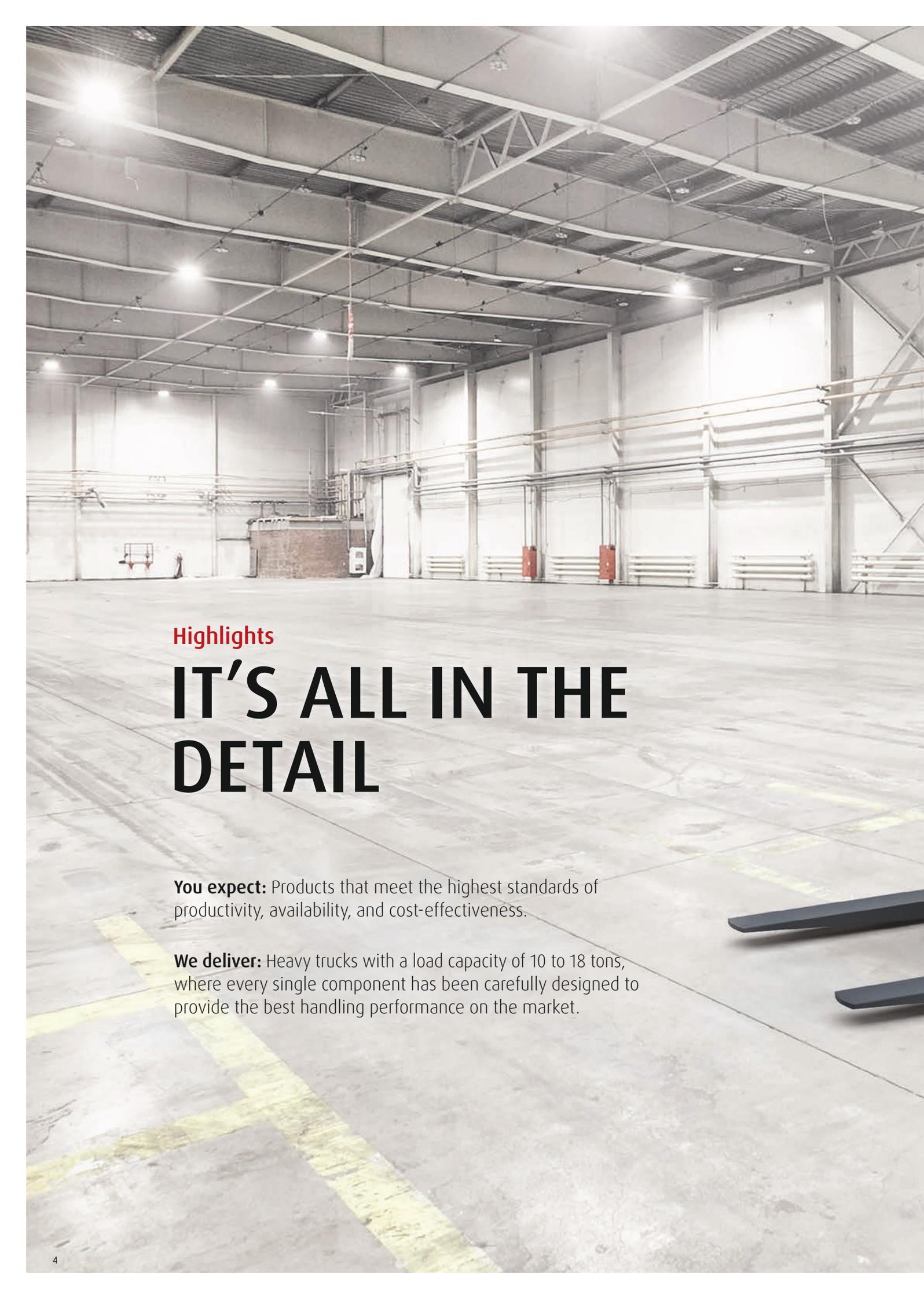
SETTING THE BENCHMARK IS OUR TRADEMARK

What makes a good investment? It's simple. A good investment is one where there are so many sound arguments in favor of it, that the question of alternatives is completely blown out of the water. This is the exact case with our H100 – H180 heavy trucks.

For starters, they are proven to have the best handling performance in their truck class, as well as the lowest fuel consumption and the best emission values in the competitive field, not to mention the fact that the low service costs are second to none. The low cost of servicing is largely thanks to the maintenance-free hydrostatic drive, which also ensures smooth and precise transportation of hazardous goods. Other benefits include market-leading visibility and Linde's signature ergonomics, which allow your employees to remain focused and unfatigued throughout even the toughest shifts. And thanks to a vast array of special equipment, our heavy-duty machines can be optimized for your specific operational requirements.

In short, we offer nothing short of the best overall package for even the most demanding applications. You can rely on us – to set the benchmark, and to measure ourselves against it.

→ www.linde-mh.com



Highlights

IT'S ALL IN THE DETAIL

You expect: Products that meet the highest standards of productivity, availability, and cost-effectiveness.

We deliver: Heavy trucks with a load capacity of 10 to 18 tons, where every single component has been carefully designed to provide the best handling performance on the market.

COMPLETE CONCENTRATION

Ergonomic driver's cabin with ample space and cleverly arranged control elements – ensuring safe handling and preventing fatigue

THE PERFECT OVERVIEW

High-resolution 7-inch color display with user-friendly touch operation and the option of an integrated camera display

UNRIVALED REAR VIEW

Optimum visibility over the counterbalance and reduced blind spot – for significantly improved safety when reversing and a far lower risk of accidents

MINIMAL FUEL CONSUMPTION

Highly efficient, high-performance turbo-charged common-rail diesel engine with diesel particle filter system and emissions well below the EU-V emissions standard



EQUIPPED FOR ALL USE(R)S

Wide range of additional features and special equipment to suit individual requirements: from state-of-the-art assistance systems to a broad variety of attachments, as well as the unique Linde rotating cabin or lift cabin

MAXIMUM SERVICEABILITY

Easily accessible service door for regular inspection and laterally tilting cabin for easy access to the engine compartment

THE UTMOST PRECISION

Linde hydrostatic drive with dual-pedal control for precise maneuvering, rapid change of direction, lower fuel consumption and the best handling performance in the market environment

Driver's Workstation

PERFECTLY EQUIPPED



The formula is simple: The better the workspace, the greater the operator's motivation and the better the results. This is the principle we have followed consistently when designing the driver's workstation for our heavy trucks. After all, your employees spend several hours a day in there, sometimes in really harsh conditions. Our carefully considered comfort solutions ensure the best possible ergonomics, keeping your employees healthy, fit, focused, and motivated.



PRACTICAL PERFECTION

The design of the driver's cabin is based on decades of close interaction with users from a wide range of different industries. The result speaks for itself and – more importantly – works for you. Thanks to the handy joysticks, the driver is able to operate all the essential lifting functions while their arm rests comfortably on the length and height-adjustable armrest. The steering column can also be adjusted to the preferred height and angle. Combined with the spaciousness of the cabin, a variety of storage options and the option of additional features – such as the powerful air-conditioning system – these features provide a tailored workspace for tailored results.

DOUBLE THE PEDAL POWER

One pedal for driving forwards; one for reversing: Linde's tried-and-tested dual-pedal control system is the only one of its kind on the market and takes the ergonomics of our heavy trucks to another level. Ultimately, it allows the operator to move the truck forwards or backwards smoothly and continuously. When it comes to the typical maneuvers required in the workplace, this not only increases precision and saves time, but also prevents the driver from becoming fatigued. This is due to the fact that they no longer have to perform physical movements such as inching while simultaneously pressing the accelerator pedal. There is also the option of a single-pedal control with a directional switch integrated into the armrest.





THE HEIGHT OF COMFORT

The driver's cabin is decoupled from the truck and the chassis with a series of rubber bearings, significantly reducing the amount of vibration felt by the operator. This lowers the potential health risks to the driver and – in the long term – can reduce the number of absences due to illness, which can be very expensive. The individually adjustable comfort seat, which is fitted as standard, also makes a significant contribution to the driver's well-being.

Its hydraulic suspension provides additional protection against shocks and vibrations, such as those caused by uneven surfaces.

INFO AT THE READY

As intelligent as a smartphone, and possibly even easier to use – your employees will be up to speed with the high-resolution 7-inch color touch screen in no time at all. There is also the option of displaying the camera image from the optional rear-view camera without the need for an extra screen.



Safety

WORK EFFECTIVELY – BUT SAFELY!



In any scenario involving the interaction of industrial trucks, people, and infrastructure, every accident avoided helps keep your employees up and running, your logistical processes operational – and protects your company from the high costs resulting from absence, downtime, or repairs. This is why our heavy trucks provide maximum safety as standard – with an intelligent design based on optimum visibility, as well as a wide range of optional assistance systems and safety features.

EXCELLENT VISIBILITY AS STANDARD: SAFETY IN DESIGN

Especially when handling heavy or bulky loads, poor visibility not only makes the work more difficult and unproductive, but also more dangerous. The H100 – H180 trucks from Linde make this a thing of the past. For example, the unique design of the lift mast provides a considerably improved view of the load and the route of travel. At the rear of the truck, not only has the counterbalance been beveled, but the attachments such as the exhaust and air inlet have also been cleverly positioned outside the field of vision, giving the driver an almost completely unobstructed rear view when reversing – a feature that cannot be found elsewhere on the market.



PERFECT GRIP: ANTI-SLIP, ILLUMINATED STEPS

Of course, when it comes to these giants of the forklift world, we have not only thought about the big picture, but also honed in on the important details. The best example is the highly slip-resistant steps, which are fitted as standard. This design detail protects your employees from dangerous trips or slips, and particularly comes into its own in scenarios where drivers have to keep hopping on and off – with wet shoes, for example. There is also the option available of a lighting system for the step – a useful addition for fleets of forklifts that have to operate in poor lighting conditions.

PARK & STOP: AUTOMATICALLY APPLIED PARKING BRAKE

It doesn't bear thinking about what might happen if a fully-loaded heavy truck were to lose control. For this reason, we have fitted our Linde H100 – H180 models with an automatically applied parking brake as standard. This is automatically activated as soon as the driver dismounts, enabling safe stopping on ramps and gradients.



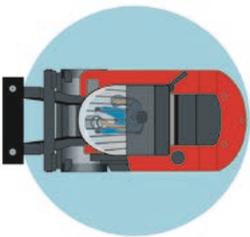
A HIGHER PERSPECTIVE: THE LINDE ELEVATING CABIN

Unlike any other on the market, the Linde elevating cabin can be extended to a height of up to 2.5 meters in less than ten seconds. This puts the driver at about 5.5 meters above the ground, giving them the best possible visibility of their route of travel, even when carrying large, bulky loads. The lifting function is controlled by a joystick or buttons, each of which raise the cabin to a predefined position. For additional safety, as the lifting height increases, the truck's driving speed is automatically reduced. The degree of speed reduction and the default cabin height settings can be adjusted to meet your exact requirements.

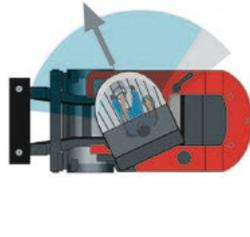


TURN A PROFIT: THE LINDE ROTATING CABIN

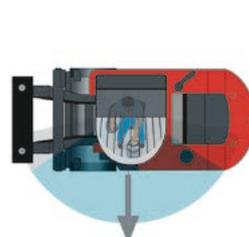
The Linde rotating cabin – available as an added option – offers huge advantages in terms of safety, ergonomics, and productivity. While other manufacturers only offer rotating seats, our solution offers continuous rotation of the entire cabin. This means that all operating functions stay exactly where your driver needs them. The cabin can be rotated 65 degrees clockwise and 180 degrees counter-clockwise – either continuously, using the joystick, or using four buttons set to pre-configured positions. Additional mounted mirrors ensure that the operator has the optimum all-round visibility in each cabin position.



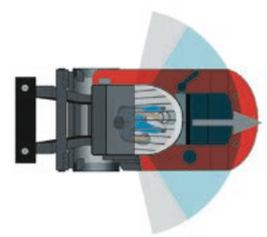
Complete field of vision with rotating cabin, left 0-180 degrees, right 0-65 degrees



Field of vision when turning the cabin 65 degrees to the right



Field of vision when turning the cabin 90 degrees to the left



Field of vision when rotating the cabin 180 degrees to the left

■ Active field of vision

■ Passive field of vision

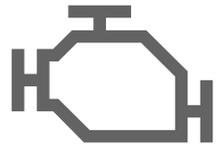


SAFETY IN SITU: THE LINDE SAFETY GUARD

This state-of-the-art assistance system is able to establish the exact location of pedestrians and vehicles in the truck's environment. To do this, the system has special transmitter and receiver units which communicate with zero interference – even through shelves, walls and gates – thanks to the ultra-broadband technology. The technology is therefore able to detect potentially critical situations in good time, for example if a forklift driver and a pedestrian are set to collide with one another in the warehouse. Linde's new interactive safety vest also comes into play in scenarios like this. Featuring smart technology, the garment alerts the wearer to an approaching truck by means of vibration as well as an acoustic signal. Thanks to the ultra-bright LED stripes, the vest also makes the wearer highly visible from a good distance away.

Drive & Handling

IMMENSE POWER, CAREFULLY CONTROLLED



If you could move more goods in the same amount of time with one truck compared to another – which one would you add to your fleet? It's a no-brainer, really. Thanks to the clever combination of high-torque diesel engines, continuously variable hydrostatic drive, and the precision of their lifting hydraulic system, the Linde H100 – H180 models provide a level of performance that is unrivaled by the competition. Unrivaled being the operative word, as our heavy trucks are leagues ahead of the competition in terms of fuel consumption and emissions, too!

PRECISION IN THE PEDAL

Linde's hydrostatic drive offers clear advantages in terms of both productivity and cost, making it one of our heavy trucks' strongest USPs. In technical terms, the internal combustion engine drives a pump, which then uses oil pressure to transmit the power to two hydraulic motors in the drive axle.



The hydrostatic drive from Linde is continuously variable, providing entirely uniform, smooth operation.

How Does This Benefit You As a Customer?

- **High turnover:** Linde's hydrostatic system is the basis for the tried-and-tested dual-pedal control, which allows the driver to move the truck forwards and backwards smoothly and continuously. Because changing direction is also significantly faster, your employees can turn over more goods in the same amount of time – with the added benefit of precision maneuvering. Depending on the area of application, this may even mean you need fewer trucks to get the job done.
- **Lower service costs:** Thanks to the almost entirely wear-free operation of Linde's hydrostatic system, our trucks no longer require a maintenance-intensive braking system, as the closed oil circuit brakes the truck when the accelerator pedal is not activated. Equally, the technology requires significantly fewer components than, for example, a conventional converter transmission – even dispensing with gears, clutch, and transmission oil. Plus, the hydraulic oil required only needs changing every 6000 operating hours.



PERFORMANCE MEETS EFFICIENCY

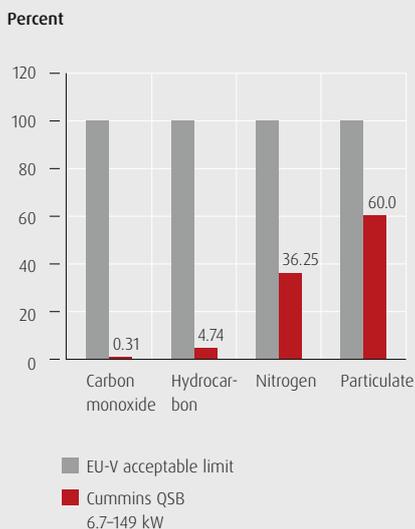
Made for a challenge: All models of heavy truck from Linde feature a state-of-the-art 6.7-liter turbocharged diesel engine with common-rail injection and an integrated diesel particle filter system.

How Does This Benefit You As a Customer?

- **Powered with precision:** By the time it reaches 1400 rpm, the engine is already at its phenomenally powerful maximum torque of 800 Newton meters. The motor speed is automatically adjusted to the power required at any one time, ensuring that the unit is constantly running within the optimum range.
- **Unbeatably economical:** The Linde heavy trucks boast the lowest fuel consumption in their class. This has been verified through various means, including a TÜV Nord-certified work cycle in which our model was shown to use around 30 percent less diesel than the next best competitor.
- **Competitively clean:** Not only are the emission levels of our heavy trucks significantly lower than equivalent models from our direct competitors, but they even fall considerably below the strict limits set by the EU-V emissions standard, particularly in terms of nitrogen and particle emissions.



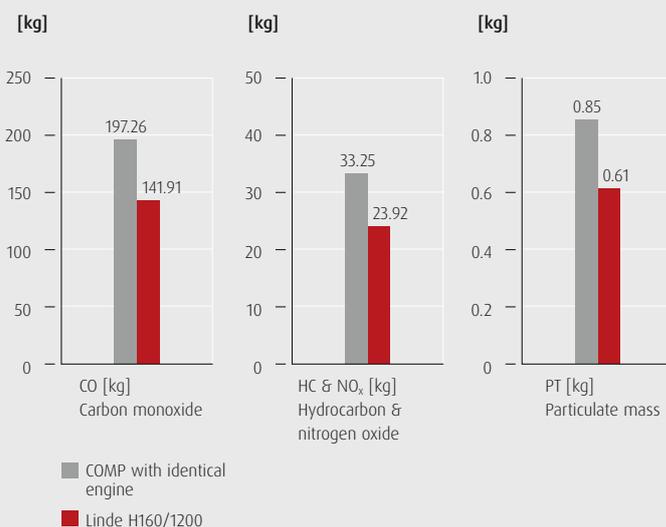
Exhaust Emissions: Cummins EU-V vs. Acceptable Limits



Pollutant Emissions: Linde H 160/1200 vs. COMP (per 1000 operating hours)

COMP = competitor

The Linde H160/1200 emits up to 39 percent less pollutant per 1000 operating hours than a competitor with an identical engine. The level of pollutant per load is also reduced, thanks to the high turnover of the Linde H160/1200 (see drive).



Performance Reports

ADDED VALUE YOU CAN MEASURE



Superior performance – in black and white. We could talk all day about the benefits that the Linde H100 – H180 models can bring to your company – but the figures speak for themselves. We had our heavy trucks compete against various competitors’ models in a range of different work cycles – including the top work cycle certified by TÜV Nord. Ultimately, the results clearly demonstrate that our trucks are the best choice in all categories: Energy costs, performance and overall costs.

COST CALCULATIONS

COMP = competitor

Source: Results based on TÜV NORD-certified work cycle



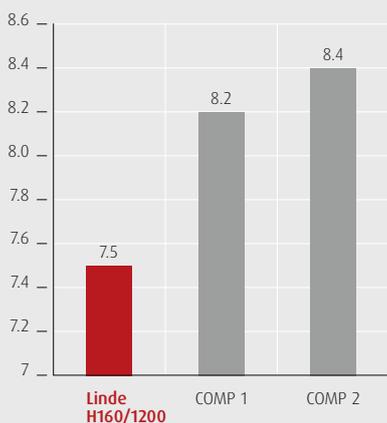
Example Customer Application

2000 h/year; 5 years running time; EUR 1.2/l diesel; EUR 5 service costs/operating hour; EUR 20 personnel costs/operating hour (driver); residual value after 5 years: 20% of the purchase price per truck

Work cycle: The forklift driver moves the truck from A to B several times, alternating between a 16-ton load, 8-ton load and no load. The journeys are times and fuel consumption measured. Each truck performs the work cycle five times; the best and worst results from each truck are deleted to obtain the mean value.

Time per Work Cycle

Minutes

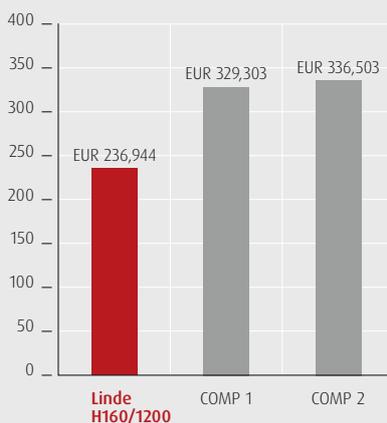


→ Conclusion: Time per Work Cycle

The performance guarantee test, based on real industry applications, shows that customers with a COMP 1 require 0.7 minutes (42 seconds) longer to complete the TÜV NORD-certified work cycle than those with a Linde H160/1200. With the COMP 2, the work cycle takes 0.9 minutes (54 seconds) longer.

Energy Costs Over Running Time of 5 Years at 70 work cycles per day

EUR Thousand



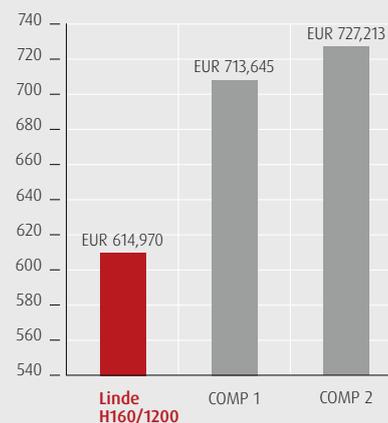
→ Conclusion: Energy Costs

Each day of operating the COMP 1 costs the customer EUR 80.31 more than it costs to operate the Linde H160/1200. Over five years, that amounts to EUR 93,000. Each day of operating a COMP 2 costs the customer EUR 86.57 more than it costs to operate the Linde H160/1200. Over five years, that amounts to EUR 100,000.

TCO Over Running Time of 5 Years

= Total cost of ownership (acquisition costs, energy costs, service costs and driver costs)

EUR Thousand



→ Conclusion: TCO

Every day of operating a COMP 1 costs the customer EUR 85.80 more than it costs to operate the Linde H160/1200. Over five years, that amounts to EUR 100,000. Every day of operating a COMP 2 costs the customer EUR 97.60 more than it costs to operate the Linde H160/1200. Over five years, that amounts to EUR 113,000.

The purchase prices of the trucks are taken into account in the calculation. A detailed calculation, tailored to your requirements, can be requested from your Linde dealer.



The Networked Fleet

THE SMARTER WAY TO ECONOMIZE



Here at Linde, we firmly believe that digitization is the right option for any scenario in which it helps you to make processes run more efficiently, make better use of your trucks, and increase productivity. This is precise aim of our modular fleet management software, Linde connect. This helps you to network your industrial trucks and to manage them more effectively using our powerful connect:desk desktop software. This will give you valuable insights into how to optimize service and maintenance, speed up processes, make operations safer, and integrate trucks into comprehensive IT processes.

Service & Maintenance

DESIGNED FOR MAXIMUM SERVICEABILITY



Whether you have a couple of trucks or an entire fleet – each truck that is out of action costs you time and money, not to mention the hassle it causes. To save you this inconvenience, we have designed our heavy trucks with service-optimized and low-maintenance features as standard. In addition, you benefit from access to our extensive Linde service network, with over 8000 service technicians and more than 700 sales and service facilities in around 100 countries worldwide – 24 hours a day, seven days a week.

MINIMAL MAINTENANCE: THE LINDE HYDROSTATIC SYSTEM

No worn clutches, no damaged transmissions, no brake systems constantly wearing out – the unique hydrostatic drive from Linde provides a variety of benefits when it comes to service and maintenance. The system operates via a closed oil circuit, for which the hydraulic oil only needs to be replaced every 6000 operating hours. The closed oil circuit also ensures that the truck brakes automatically as soon as the operator lifts their foot off the accelerator pedal making worn-out brakes a thing of the past.



MAXIMUM PRACTICALITY: THE TILTING CABIN

This special feature also makes a significant contribution to the outstanding serviceability of our heavy trucks. The electro-hydraulic system allows the service technician to quickly and easily swing the driver's cabin to the right, providing instant access to the engine compartment ensuring that necessary work can be carried out immediately.

SPEEDY SERVICING WITH THE SIDE SERVICE DOOR

Oil level and oil filter OK? Air filter OK? Starter battery working as it should? With the Linde H100 – H180 heavy trucks, your daily pit stop is extremely quick and easy. This is due to the specially designed side service door, which provides optimum accessibility to all the components requiring daily inspection, keeping standstills and downtimes to an absolute minimum. The door gives the employee access to the following components:

- Oil filter
- Oil dipstick (incl. refilling)
- Diesel filter
- Air filter
- Washer fluid tank
- Starter battery
- Central fuses
- Cabin tilt
- Diagnostic connector

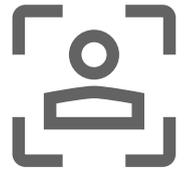


In addition to the handy service door, your daily truck checks are made even easier with the pre-op check app from our dedicated range of fleet management software Linde connect. This requires the operator to verify the condition of the truck before the start of their shift using a mobile device. The app runs through a series of questions, and the truck cannot be started until the operator is able to confirm that no defects have been detected.



Special Equipment

YOUR REQUIREMENTS – OUR SOLUTIONS



From motor boats to concrete parts, paper rolls to glowing iron cylinders, shipping containers to wire coils – whatever your industry and whatever you need to transport, our wide range of attachments, fork carriages and custom-built solutions will ensure that your heavy trucks are perfectly adapted for your specific application requirements. Here is a small selection of the special equipment we offer.

ATTACHMENTS



Multi-Pallet Clips

A really handy tool which is especially valuable for use in the beverage industry. Allowing you to carry eight Europallets at once, this nifty tool shortens your journey times and improves the efficiency of your logistics processes.



Coil Handling

From the paper industry to the steel industry – whenever bulky and hollow items such as wire coils need to be transported safely, our robust drum clamps make the perfect addition to your fleet of heavy trucks.

FORK CARRIAGES



Multi-Functional Fork Carriage

This solution facilitates the safe handling of bulky loads such as large metal sheets. As well as the basic version with its end position sideshifter, we also offer versions with additional fork adjustment options and/or single fork adjustment.



Fork Positioner with Level Compensation

Highly recommended for smooth loading and unloading on difficult surfaces, the fork positioner with level compensation (+/-5 degrees) is available both with integrated and hook-mounted forks.

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 2019 financial year, the Linde MH EMEA Operating Unit (Europe, the Middle East and Africa) recorded a total revenue of roughly EUR 3.5 billion, with approximately 12,000 employees worldwide. Global sales of Linde trucks amounted to approximately 135,000 in 2019.

Linde – for your performance



Linde Material Handling GmbH | Carl-von-Linde-Platz | 63743 Aschaffenburg
Telephone +49 6021 99 0 | Fax +49 6021 99 1570 | www.linde-mh.de | info@linde-mh.de
Printed in Germany