

CESAB

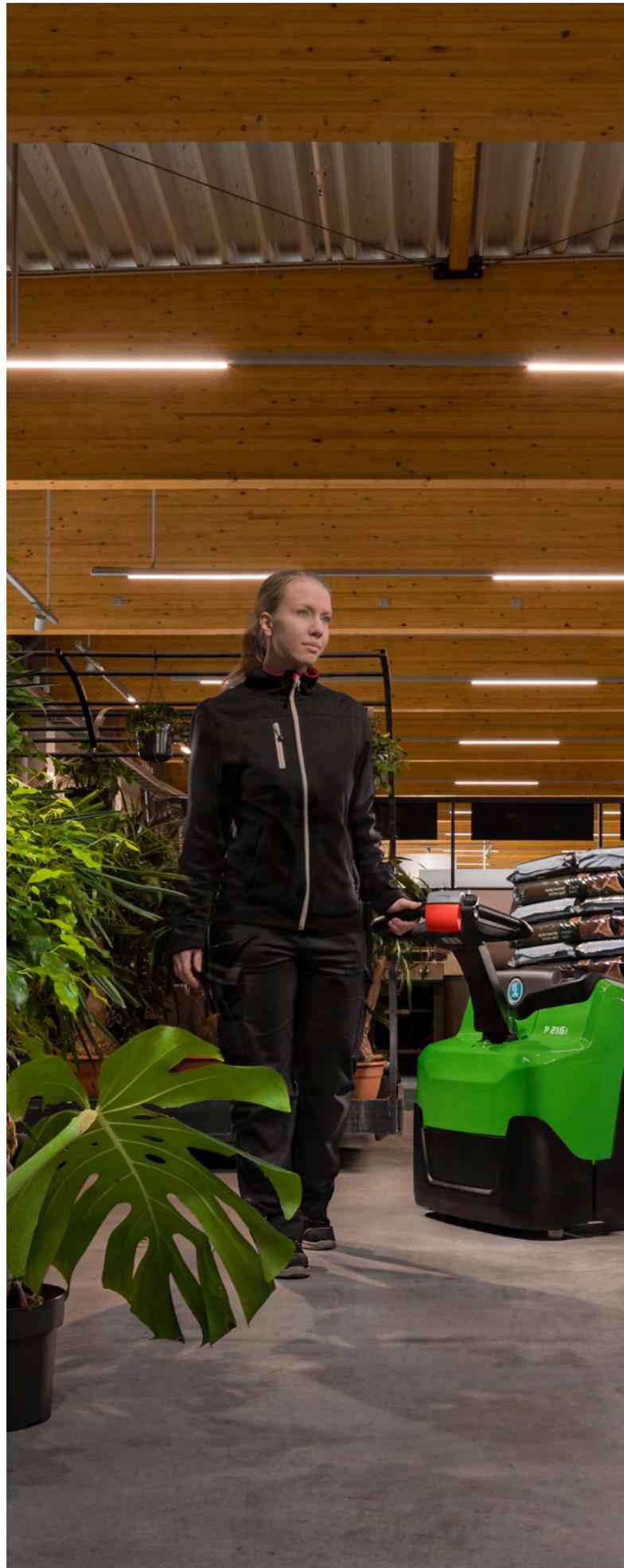
LI-ION

Lithium-Ion Battery System

Cesab's in-house assembled energy solution



Li-ion – the long lasting, affordable energy solution from Cesab





Contents

4

The long lasting, affordable energy solution from Cesab

High productivity and improved safety

5

No more battery changes

Maximise your truck's uptime

6

Durable and easy to use

Safe charging anywhere at anytime

8

Think differently with Li-ion

Use smaller batteries and have maximum truck availability

9

Intelligent charging

Smart chargers for optimal power distribution during charging

10

Our first Li-ion designed pallet truck

Small, light and energy efficient

11

The complete package

Unrivalled service and support

12

Contact

Lithium-Ion Battery System

The long lasting, affordable energy solution from Cesab

From higher productivity to improved safety, here are just some of the ways you can transform your material handling operation with Cesab Li-Ion batteries:

- Li-ion batteries have **more than three times the lifecycle** of classic lead-acid batteries. This means you need just one battery for the entire life of a forklift truck.
- Li-ion batteries are **up to 30% more energy efficient** than lead acid batteries. With more stable voltage, Li-Ion batteries deliver maximum power during the complete discharge cycle, and offer higher energy throughput compared to lead acid batteries.
- Li-ion batteries can be **charged during shift breaks**. This opportunity charging can power a truck through several shifts.
- Li-ion batteries are entirely closed, with **no water topping** or **any other maintenance** required.
- **There is no gassing** during Li-Ion battery charging, which means it can be charged anywhere. Its optional built-in charger is suitable for use with any wall-outlet.
- Depending on the application, **no battery change or charging rooms are required**. This further reduces cost and improves safety.
- Cesab is part of a group that has sold this proven technology since 2014, with **over 3,500 Li-ion trucks in service today**.



**Longer
life cycle**



**Cost
reduction**



**Less
energy
consumption**



**Quick & easy
charging**



**No battery
change**



**No charging
room needed**



**No need for
maintenance**



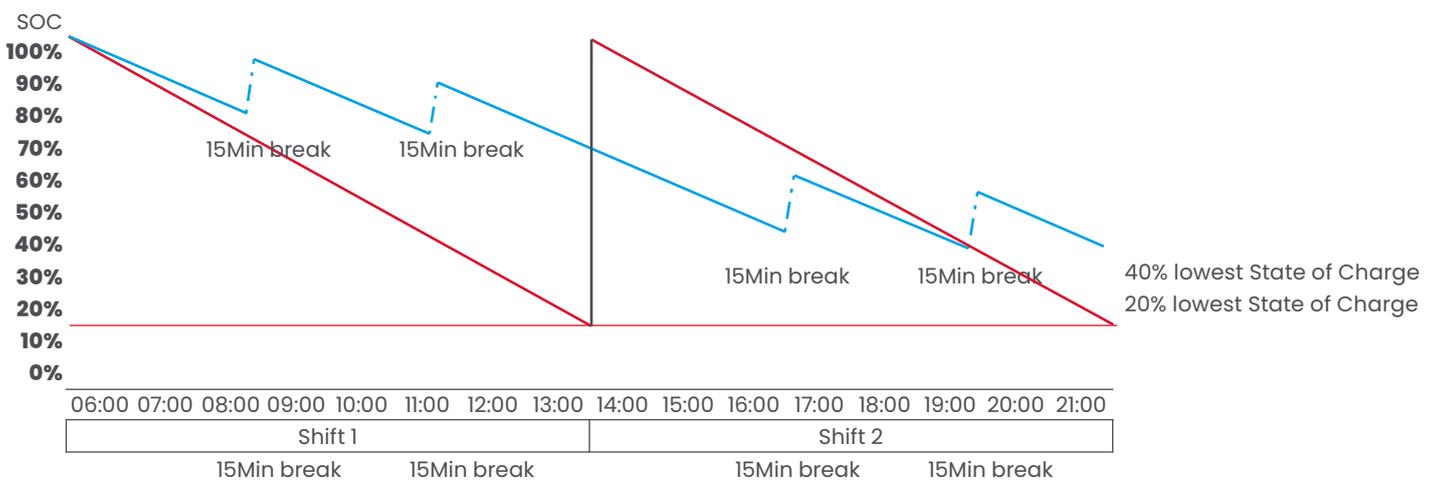
**Less CO₂
emissions**

Lithium-Ion Battery System

No more battery changes

Unlike classic lead-acid batteries, a Li-ion battery can be 'opportunity charged' during breaks, so it does not need to be changed between shifts.

This helps the truck to power through multi-shift operations, **significantly improving uptime and productivity.**



The above diagram shows a lead-acid battery, in red, with a battery swap between shifts. The Li-ion battery, in blue, is topped up at each break. A 15 minute- charge adds up to 25% capacity, enough to power through the day.

This illustration shows that **opportunity charging can prevent the need for a second battery**, and, in many cases, allows a smaller battery to be used.

Lithium-Ion Battery System

Durable and easy to use

For easy use of the charger, an ergonomic and safe Cesab-designed battery plug comes with the Li-ion battery.

- **Needs just a light twisting motion to plug or unplug**
- **No risk of sparks**
- **Bespoke high quality design**
- **Built to handle multiple connections per day**
- **Designed for safe charging with no risk of dust, damage or short circuits affecting the connection**





**Peak
productivity,
all day,
every day...**

Lithium-Ion Battery System

Think differently with Li-ion

You can achieve the same results with less by selecting the right Li-ion battery.

A 1.6 tonne CESAB P216 powered pallet truck assures 10 hours of operation using a 150 Ah lead-acid battery.

On average, this type of truck is used 500 to 1000 hours each year, for three to four hours a day.

A 105 Ah Li-ion battery can be fully charged within two to three hours with its built-in 30A charger.

If your operations allow for one-hour opportunity charging in the morning and another hour in the afternoon, this would add an additional 60 Ah (57%), to give the Li-ion battery 165 Ah capacity (105 Ah basic capacity + 60 Ah opportunity charge).

This is more than enough power to complete the same three to four hours of work as the larger 150 Ah lead-acid battery.

Designed for opportunity charging

Li-ion batteries are made to be opportunity charged, with one complete cycle reached after several short high current charges.

This contrasts with lead acid batteries where overheating can lead to degradation.

A Li-ion battery can be charged four times a day, to 25% each time, to achieve 100% battery and a full cycle.



Lithium-Ion Battery System

Intelligent charging

Managing the power for multiple truck charging

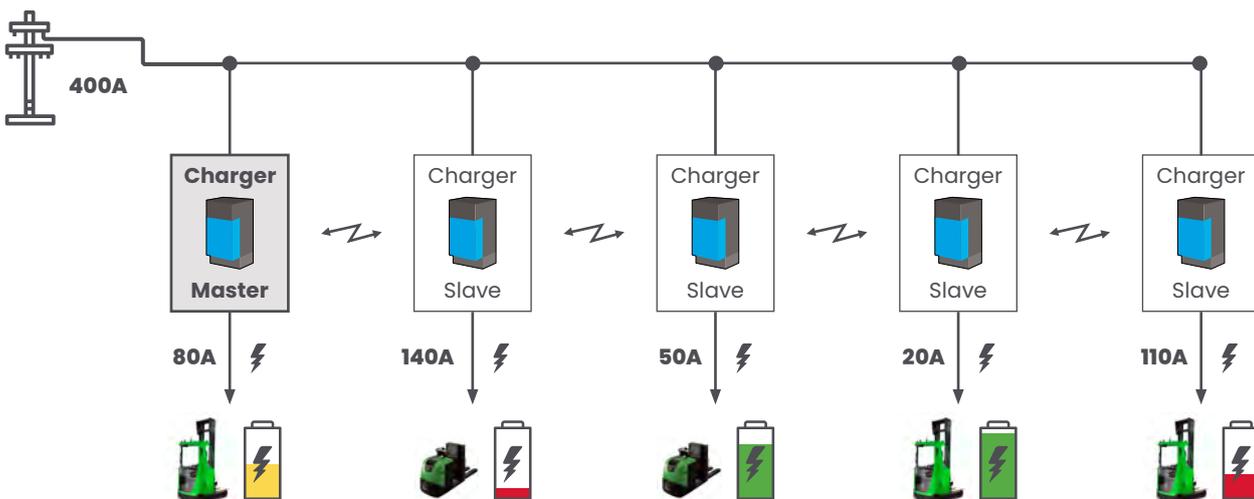
Because Li-ion batteries can be charged fast, the requirement to charge several trucks at the same time, particularly in larger operations, can increase.

Smart Charging technology allows multiple trucks to be charged at once without causing power grid problems or creating a need for costly infrastructure investment.

Smart Chargers communicate with each other to cleverly manage power distribution and maximum output.

This can also be configured to suit different priorities, such as charging trucks with the lowest battery levels first, before topping up batteries with more energy left.

Intelligent battery charging network



Lithium-Ion Battery System

Our first Li-ion designed pallet truck

Developed by Cesab in Europe with all the advantages of Li-ion



The Li-ion battery pushes the boundaries of lift truck design.

Li-ion elements are much more compact, and lighter, than classic lead-acid elements. This helps us to create smaller, lighter and more energy efficient trucks.

The first of these trucks, designed by Cesab engineers, is the CESAB P216i, a powered pallet truck with 1600 kg capacity.

Thanks to the modular, compact and scalable Li-ion solution, the new Cesab P216i offers:

- Optimal position of components, limited weight and better weight distribution
- Completely new design standards
- Next level energy efficiency
- A more compact, lighter truck

Compared to the classic CESAB P216, the differences are significant:

- 119 mm shorter length to fork face (l₂)
- 85 mm lower drive unit height
- 43% lighter than the comparable lead-acid version

The CESAB P216i brings together all the benefits of Li-ion, offering maximum performance and productivity to warehouse, distribution centre, super and hyper market and industry settings.

CESAB energy solutions

The complete package

CESAB's commitment to creating superior products is matched by its drive to deliver unrivalled service and support. Every CESAB customer benefits from a nationwide network of local dealerships.

Your local CESAB dealer provides a personalised, local service, tailored to the specific requirements of your business.

They will advise on the best choice of equipment to meet your materials handling needs, and on the many options for tailoring your forklift to the unique demands of your working environment.

Buying a CESAB Li-ion solution is only the beginning of the support from your dealer, with experienced and fully qualified service engineers only a local call away.

In the unlikely event that problems do occur with the battery, our service technicians can service and replace parts / modules of the batteries.

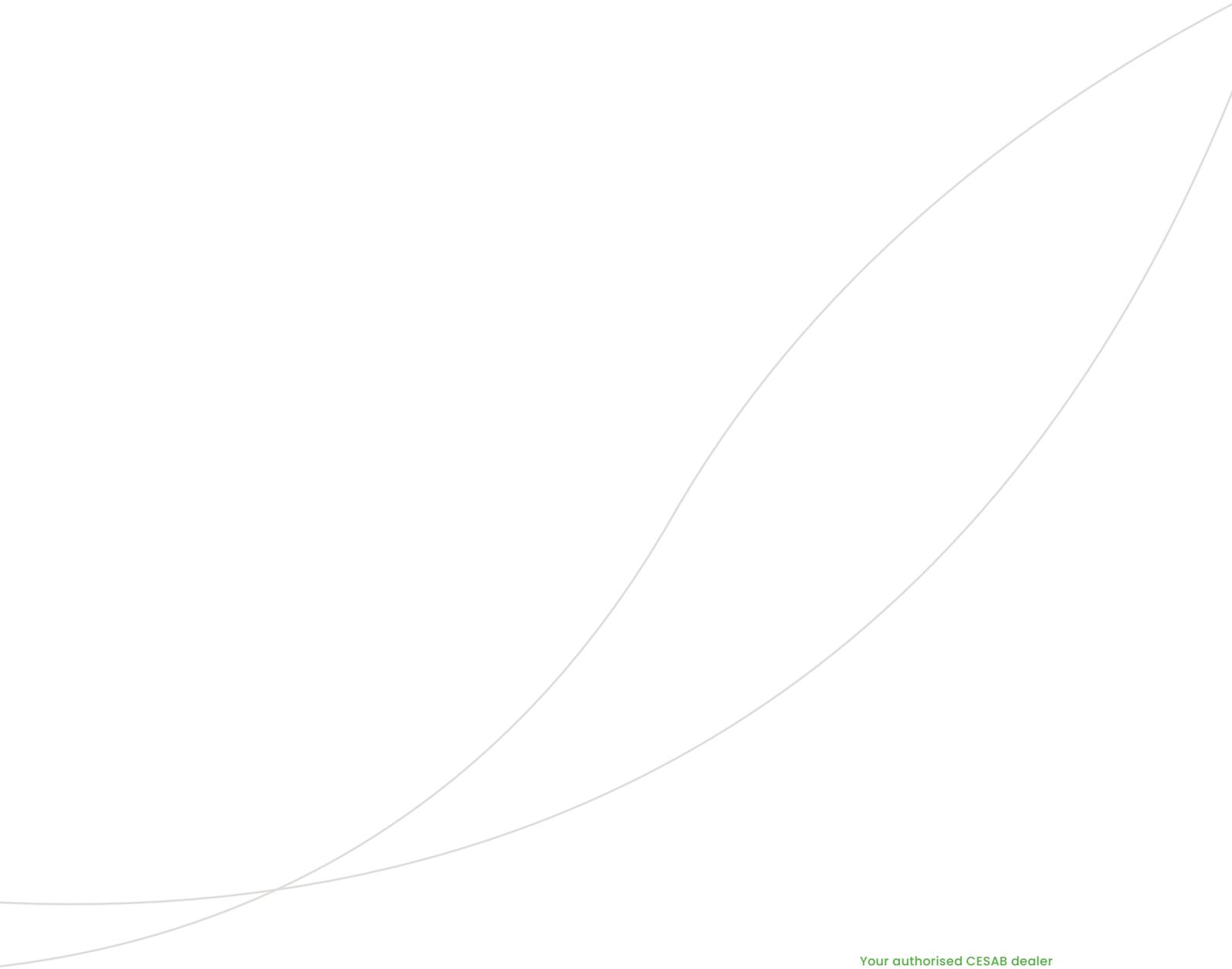


Our service engineers carry all major service parts in their vans, ensuring minimal disruption to your business.

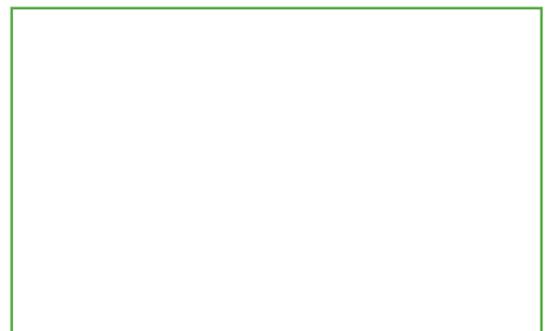
At CESAB we believe we offer our customers a complete package of the best equipment and the best support. To experience it for yourself call your local CESAB dealership today.



LI-ION



Your authorised CESAB dealer



www.cesab-forklifts.eu

Pictures may show optional equipment or accessories not included in the standard execution of the truck.

The data in this document was determined based on our standard testing conditions. Operating performance may vary depending on the actual specification and condition of the truck as well as the condition of the operating area.

Availability and specifications are determined regionally and are subject to change without notice. Please consult your authorised CESAB dealership for further details. BR_Li-ion_EN_11/2020 / Ucan V04 – Copyright CESAB Material Handling Europe.