Li-Ion TECHNOLOGY

The future is now:

Superior performance, innovative technology, typically STILL

www.still-zero-emission.com

first in intralogistics

STILL

STILL Li-Ion Technology

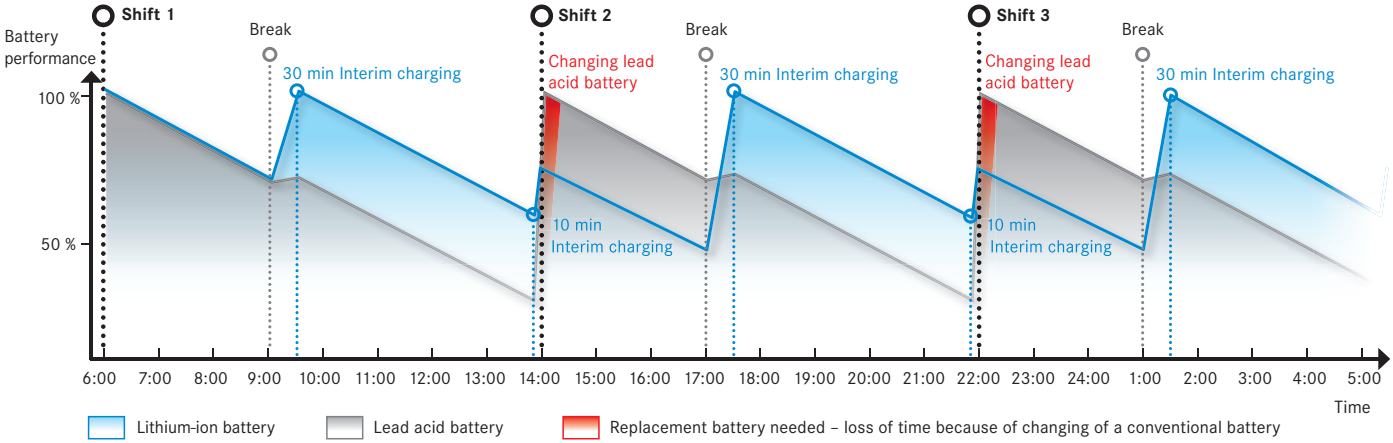
CUT YOUR OPERATING COSTS WITH LI-ION

Virtually all of us make use of this technology every day, without really being aware of it. We are talking about Lithium Ion batteries (Li-Ion). No modern cell phone can do without it. Now this technology is conquering new fields of application and it is moving into the field of industrial trucks. What exactly makes this new type of accumulator so attractive?

The benefits are evident. The Li-ion battery convinces with its high performance and is especially suitable for use in two- or three-shift operations where conventional lead-acid batteries are used and changed. It is not necessary to change Li-ion batteries. Fast opportunity charging now makes it possible to effectively use work stops such as lunch breaks. The service time and the availability of the trucks is substantially increased by opportunity charging or by installing twice the battery capacity in the truck.

The high-performance lithium-ion technology is especially suitable in cases where lead acid batteries are in use and have to be changed in two to three-shift operation. Lithium-ion batteries do not need to be replaced. By quick interim charging any downtime, such as a lunch break, can be efficiently used and the battery is recharged in a very short period of time. Interim charging does not affect the battery service life. Lithium-ion technology supplies constant voltage throughout the entire application time. Accordingly, you can work under full power through several shifts without having to change a battery or do any kind of maintenance at all.

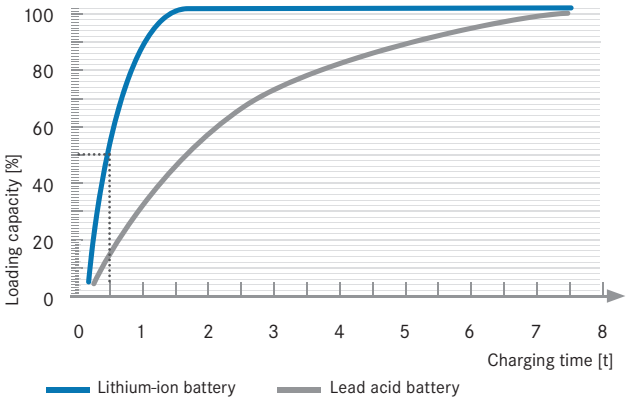
Li-Ion Technology: Full performance during several shifts thanks to effective interim charging



FAST PERFORMANCE FOR FLEXIBLE APPLICATIONS

During an assumed 30-minute lunch break, the Li-ion battery can be charged up to 50% of its capacity. The full capacity is reached after a charging time of 1.5 hours, compared to the seven to nine hours conventional batteries require for charging.
It is also possible to opportunity charge Li-ion batteries without impairing the battery capacity. Lead-acid batteries, in contrast, partly loose unused capacity over time. Li-ion batteries are widely unaffected by this impact.
Savings in operation and handling costs, resulting from the use of conventional lead-acid batteries, make the acquisition of Li-ion batteries rapidly profitable.

COMPARING BATTERY CHARGING TIMES



LI-ION TECHNOLOGY PROVES WELL IN APPLICATION

The Li-ion battery is an efficient and compact energy pack, convincing with high availability. Now, up to 95% of the power in the battery can be used, compared to 80% of conventional lead-acid batteries. The Li-ion battery allows about twice as many charging cycles. With an identical volume as a lead-acid battery, the Li-ion battery contains twice as much energy. This means, efforts needed to change batteries and infrastructure, can be reduced. Another crucial benefit in applications is that Li-ion batteries are maintenance-free making work with these batteries carefree. Maintenance work, required by lead-acid batteries, is not necessary for Li-ion batteries.

STILL Simply Efficient

HOW CAN LI-ION TECHNOLOGY HELP YOUR COMPANY?

What makes up the optimal battery technology? We at STILL are firmly convinced that the answer is far more than high performance. Only perfectly harmonizing characteristics like power, precision, ergonomics, compactness, safety and ecologic responsibility creates a technology that is the optimum solution for the customer.

POWER

The high energy density of the Li-Ion battery ensures long working times and increases the high availability of the truck

High availability by quick opportunity charging without the need to change the battery

Longer truck performance thanks to stable voltage supply throughout the discharging process

Li-Ion batteries maintain their performance level also at temperatures below freezing making them **ideal for use in cold areas**

PRECISION

The communication between truck and battery controller allows to efficiently use and deploy the Li-Ion battery

No equalization required

ERGONOMICS

Virtually no physical strain, because battery changes are not needed

Maintenance free operation - no topping up of water or checking acid levels

No organizational effort - pre-work checks and providing water are not needed

COMPACTNESS

Opportunity charging at any mains wall outlet - no charging station required

Higher energy density for **compact battery dimensions**

SAFETY

Intelligent battery management monitoring every important function

Higher user safety, thanks to acid-free use

User friendly due to avoided battery change

No emission of battery gasses

ECOLOGIC RESPONSIBILITY

Eco-friendly thanks to **twice the service life**

Eco-friendly due to absence of acid

Substantially higher efficiency of the Li-Ion battery when charging and discharging reduces energy costs

STILL LI-ION FLEET

INNOVATIVE TRUCK PORTFOLIO - READY FOR YOUR OPERATION

STILL has started to work with Li-Ion batteries early on and was able to develop a large number of trucks with this technology. Today we are ready to offer you a complete fleet of Li-Ion trucks. Be it low lift trucks, order pickers, tractors or counterbalanced trucks - our portfolio is constantly growing. Find out more about the innovative Li-Ion family from STILL. Li-Ion warehouse trucks are fitted with a compact Li-Ion battery. Li-Ion counterbalance trucks provide enough space to deploy an Li-Ion battery with twice as much performance.

STILL LI-ION LOW LIFT TRUCKS

With its modular design STILL offers a versatile range of variants of the CX series of horizontal transporters, each making a perfect fit for the application at hand. For example the CX 20. It is an outstanding „all-round“ talent when it comes to moving loads of up to 2 000 kg horizontally. High turnover, well thought-out comfort and best efficiency are firm traits of this efficient warehouse helper. This way, for example, lorries can be effectively loaded and unloaded. During stop times, the trucks can be quickly recharged in short time.

EXU 1,6 | 1,8 | 2,0 **EXU-S** 2,2 | 2,4 **EXD-S** 2,0

STILL LI-ION TRACTORS

The tractors make any warehouse move! Our fast, powerful CX-T electric tractor is highly flexible in use. It is ideal for internal transport on medium to long distances. Typical for it are tugger train applications for moving materials between warehouses and production facilities (for example in the automotive industry, at airports, railways or mail). The clocked operation of towing trains allows effective opportunity charging of the batteries.

CX-T 4,0

STILL LI-ION ORDER PICKERS

With its modular design STILL offers a versatile range of variants of the CX series of horizontal transporters, each making a perfect fit for the application at hand. For example the CX 20. It is an outstanding „all-round“ talent when it comes to moving loads of up to 2 000 kg horizontally. High turnover, well thought-out comfort and best efficiency are firm traits of this efficient warehouse helper. The increased use in multi-shift operation allows STILL Li-ion batteries to quickly pay off when used in order pickers.

CX 2,0 **CX-M** 1,0 **CX-D** 2,0 **CX-S** 1,6 **CX-H** 1,6

STILL LI-ION COUNTERBALANCE TRUCKS

Thanks to an extensive re-design the new smart electric counterbalance truck sets new standards in handling loads of 1.4 to 2 tons. The RX 20 power pack ensures quick transport of goods also on long distances and is perfectly fit for indoor and outdoor use. The high power density, provided by Li-ion technology, allows electric forklift trucks, powered by Li-ion batteries, to prove particularly well in tough applications.

RX 20 1,4 1,5 1,6 1,8 2,0


STILL

Mission: Zero Emission

Innovative Forklifts from STILL:
powerful, efficient and environmentally friendly

www.still-zero-emission.com

Changing intralogistics – Europe becomes electric

Environmental responsibility plays an ever more important role in our society.

The role environmental responsibility plays becomes evident by the rapidly growing megatrends such as the spreading of renewable energies and e-mobility as well as in ever more strict emission standards being in place for vehicles with engines. The overarching goal is to avoid emissions that are harmful to the climate.

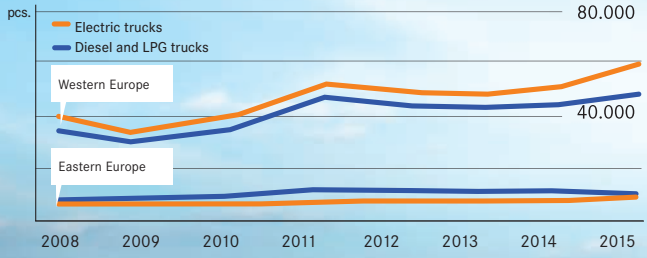
In combination with the issue of energy efficiency, reducing emissions is at the top of the agenda. With respect to means of transport, both topics are closely associated with both types of drives (motors and engines) and therefore also play a major role in intralogistics. In intralogistics, both truck types with motors and engines are widely spread and both have seen major technological developments over the past years.

Market development: Electric forklift trucks are more in demand than ever.

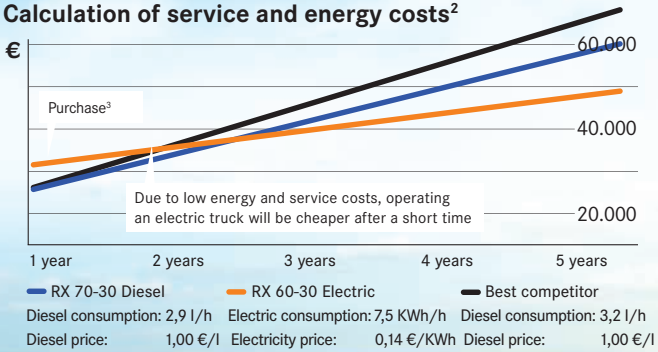
The figures speak for themselves: since 2009 all across Europe the demand for electric trucks was greater than for IC trucks. The reasons for this trend are manifold. Overall IC trucks tend to be a little less expensive to purchase than electric trucks, in the long run the latter clearly convince with substantially lower energy and service costs which quickly compensate the higher purchase price.

Further more it must be noted, that the purchase price for IC trucks is constantly rising as ever stricter emission standards require the deployment of more elaborate technologies to reduce emissions. If one looks at the Total Cost of Ownership (TCO) the long term advantages electric counterbalance trucks provide emerge clearly.

Market development in Europe[1]



Calculation of service and energy costs[2]



1 In accordance with order intake WITS (World Industrial Truck Statistics)
2 In accordance with VDI 2695, medium application 1100 hours/year - 6 year average net price for diesel = 1,00 €/l (EU Commission: Oil Bullitin Prices)
3 E-truck incl. battery and charger

Electric mobility keeps the world going round

STILL – competence in electric mobility grown over 90 years. Already in the beginning of STILL's history one of the major topics was electric efficiency.

The company attained its first major success with electric generators. The expert knowledge and experience gained in this area was later transferred to innovative transport vehicles propelled by electric motors. Already back in 1946 the electric cart EK 2000 reliably moved up to 2 tons of load for renowned customers such as the German railway. Only a little while later in 1949, the first electric counterbalance truck, the STILL EGS 1000 moved the growing flow of materials into the right direction. Since then STILL has been one of the most sought-after experts for electric mobility in logistics. Innovations by STILL covering the whole industry have made the electric counterbalance trucks more and more attractive over the years. Meanwhile electric counterbalance trucks have grown powerful enough to replace engine trucks with ease even in heavy applications, for example, in the beverage industry.

E-mobility is spreading more and more into our everyday life. Experts agree that the future belongs to these emission free means of transport with electric motors.

Already today the pulse of movement of our modern society would flatten out without electric drives. Electric means of mobility that have been established many years ago, such as trams and subway trains, are currently being joined with electric cars, busses, lorries and bicycles as we are approaching the next milestone in e-mobility.

Against the background of ever scarcer and more expensive fossil fuels, estimates are that this trend will accelerate in the future. The future of mobility is electric.

Further information about E-mobility and new innovative industrial trucks:
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