



JCB 525-60E was launched in 2020 as a part of the JCB's 100% electric E-TECH range.

IMAGE SOURCE: JCB

Environmentally-friendly material handling: Battery vs. combustion engine

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Manufacturers are more frequently developing low-emission, electrically-powered loaders in addition to their conventional diesel-powered machines, for example, wheel loaders, forklifts or telehandlers. The following text by LECTURA presents a few examples of electrically-powered telehandlers and forklifts and compares them with their diesel-powered counterparts. In some industries, such as construction, the

machines have to run for several hours at a time, or at least be ready for immediate use, so it is important to weigh up whether an electrically-powered machine meets the requirements.

Moreover, large, high-horsepower machines are not yet available with electric motors. If a machine, such as a small telehandler, is scheduled to be used during the day, perhaps in the evening for an hour or two. An electric telehandler would be suitable for this, as it can be charged during the time it is not being used. In the best case, the loader would be charged via a PV system to be able to keep energy costs low. The Weidemann company has a purely electric telescopic loader in its product range, read more about it [here](#).

An electric loader or stacker not only reduces CO₂ emissions, but also the noise level, which is an advantage indoors, for example in a large warehouse. Electric forklifts are no longer exotic on the market and are offered by many different companies. Linde, Toyota, Doosan or Jungheinrich are companies that offer electric forklifts in addition to diesel machines. The aspect that electric machines are still somewhat more expensive than conventional machines powered by diesel should also not go unmentioned. Before you decide to buy an electric machine, you should think about the purpose for which you need the machine. Important factors include the working time and intensity, where the machine will be used and possibly also calculate the costs incurred for electricity. It may well be that an electric forklift or telehandler is subsidized by the state and you will receive a grant or a discount. In terms of comfort and equipment, it makes no difference whether the machine is equipped with an electric or diesel engine.



In 2020, Crown has launched its own V-Force® branded solutions for customers seeking to improve forklift performance by using lithium-ion technology.

IMAGE SOURCE: Crown

Advantages of the combustion engine

One of the most important benefits of the combustion engine is that the forklift or telehandler is immediately ready for use if it has enough fuel in the tank. The power is unrestricted and when the tank is empty, you refuel, which is done in a few minutes. The initial cost is also slightly cheaper and there are many, different suppliers, so the choice is wide, so there could be several manufacturers for any requirement or weight class. Here are some advantages of the combustion engine to consider:

- Possibly lower repair costs

- Immediately ready for use
- Longer life, which of course depends on use and handling
- Possibly cheaper
- Fast refuelling
- Broad supplier market, especially larger horsepower loaders
- Larger machines are usually also more powerful



Merlo presented the e-Worker telehandler EW 25-5-60 in 2021 and already received a few awards for the product.

IMAGE SOURCE: Merlo

Advantages of the electric motor

A major advantage of the electric motor is that it is emission-free and quiet. The telehandler or forklift can thus also be used indoors. Due to the low noise pollution, it can also be used around noise-sensitive or skittish animals. More and more dealers are developing their own range of electric products equipped with longer lasting and more efficient batteries. In conjunction with a PV system, the energy, compared to the internal combustion engine, is cheaper. The advantages of the electric engine are summarized below:

- Emission-free and more efficient
- Quiet
- The market is getting bigger
- In connection with an own PV system cheaper
- Possibly subsidies and tax advantages

Electric Forklifts examples

MODEL	WEIGHT	MAX. LIFT. CAPACITY	MAX. LIFT. HEIGHT	ENERGY CONSUMPTION*	ENGINE POWER	BATTERY CAPACITY
Toyota 9FBMK20T	6.14 t	2 t	3345 mm	5.8 kWh/H	16.1 kW	775 Ah
Linde E20	4.31 t	2 t	3030 mm	5.8 kWh/H	2 x 11 kW	500 Ah
Yale ERC20VA	3.72 t	2 t	4006 mm	5.53 kWh/H	15.9 kW	690 Ah
Crown FC 5715 - 2.0	3.28 t	2 t	4315 mm	/	2 x 7.9 kW	630 Ah
STILL RX 60-80	12.18 t	8 t	7540 mm	16 kWh/H	2 x 10.5 kW	1240 Ah
Linde E80/900	15.72 t	8 t	7000 mm	21 kWh/H	2 x 11 kW	1240 Ah

* Energy consumption according to VDI cycle



Jungheinrich offers a full range of Lithium-Ion Technology-ready forklifts.

IMAGE SOURCE: Jungheinrich

Electric Telehandler examples

MODEL	MAX. LIFT. CAPACITY	MAX. LIFT. HEIGHT	MAX. REACH	ENGINE POWER	CHARGE TIME	BATTERY CAPACITY
JCB 525-60E	2.5 t	6 m	3.5 m	24 kW	1 - 8 h*	N/A
Merlo EW 25-5-60	2.5 t	4.8 m	2.6 m	44 kW	8 - 9 h*1	960 Ah

Weidemann T4512e	1.25 t	4.5 m	/	23 kW	2.5 - 4 h	77 Ah
AUSA T164E	1.6 t	4 m	1.74 m	8.6 kW	3.15 h*2	323 Ah
Faresin 6.26 Full Electric	2.6 t	5.9 m	3.2 m	15 kW	3 - 7.5 h	300 Ah
Snorkel SR626E	2.6 t	5.79 m	3.1 m	32 kW	15 h	400 Ah

*With on-board charger 3 kW (240V/16A) 25-80% 5h, 0-100% 8h; fast charge 18 kW (415V/32A) 25-80% 60 min, 0-100% 110 min; super charge 27 kW (415V/63A) 25-80% 35 min, 0-100% 60 min.

*1 Charge time at 220V

*2 Charge (230V) 20-80%; Fast charge (415V) 20-80% 75 min

Conclusion

The market of electric forklifts offers a lot of options and is broad, you can even get larger forklifts with an electric motor, which are well developed and designed. In the case of telehandlers, the offer is not so large yet, but more and more manufacturers develop emission-free telescopic handlers, though in many cases, only in the smaller weight segments. In terms of performance, range, etc., the electric forklifts and telehandlers are very good and are in no way inferior to the machines with a combustion engine. Which model you ultimately choose depends on the requirements that the forklift or telehandler should meet.

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