

# Power shortage?

We will take care of it!

**staad.**<sup>®</sup>



## Zero-emission work, without energy connection

Working emission-free is the future. Electric construction machinery is now widely available and the supply keeps growing. The real challenge is no longer in the machine itself, but in creating an affordable and reliable energy supply on the worksite.

The Netherlands is currently dealing with grid congestion, which means the grid is practically at full capacity which makes it nearly impossible to facilitate new power connections. When a new connection is possible, it often does not meet the power requirements to charge large electric construction machinery.

If there is no electricity available, it has to be generated locally using solar- or wind energy. A diesel generator is also possible, but this goes against the sustainability goals.

# Sustainable solution

Our Powerbox-battery pack is exceptionally suitable for moving a source of power yourself to a worksite where a grid connection is missing.

The Powerbox functions as an 'AA-battery' for an electric machine or other electric material. Depending on the application and the type of Powerbox, an inverter (Fieldmaster) can be added to provide the right power output. Once the Powerbox is out of charge and you replace it, the Fieldmaster can stay in place. This saves on transportation costs, among other things.

Our Powerbox is the force that drives our electric machinery and is always a sustainable solution. As an example, it offers sufficient capacity to run for a whole working day, or even longer. Furthermore, the Powerbox also functions as a (temporary) power supply on any location.

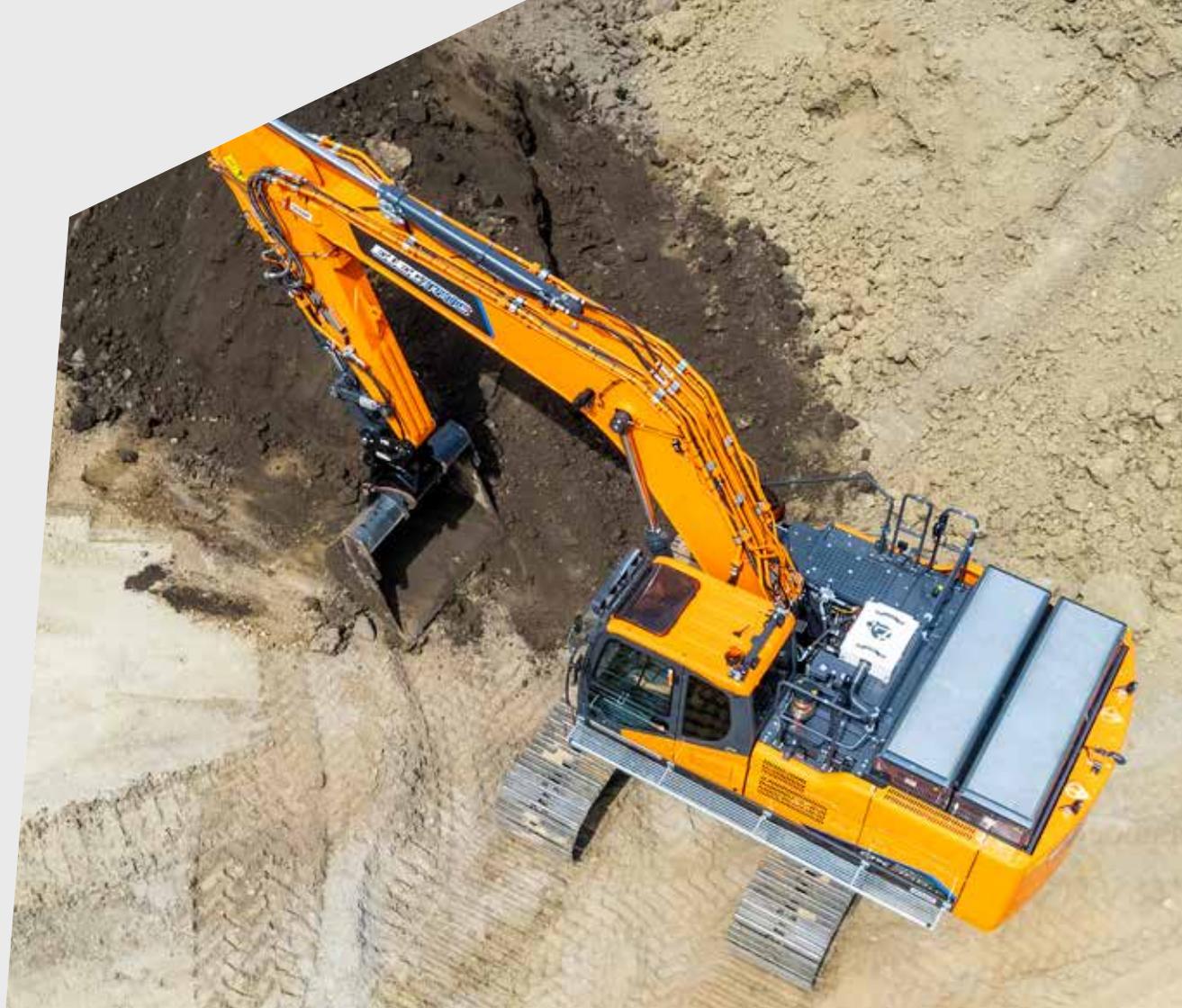


# About Staad

Staad is a supplier and manufacturer of (electric) earthmoving machinery. We have more than 100 years of experience with earthmoving machinery and delivered the very first electric and fully emission-free crawler excavator in 2020, a worldwide first.

More than 270 emission-free earthmoving machines are currently operating successfully on worksites both in the Netherlands and Scandinavia, which gives us lot of practical experience.

We offer unique solutions to supply power on the worksite. Here we focus on high-grade products and service, the same way Staad does. We combine leading knowledge and expertise with years of experience to enable temporary power supply on construction sites.





## Focus

### 100% on power solutions

At Staad, we focus on both electric earthmoving machinery and power solutions on locations where the grid connection fails to deliver.

For this, we develop our own battery pack, the Powerbox. This battery is primarily applied in the civil engineering sector, but can definitely be a suitable solution for other sectors.

A Powerbox has to be recharged and discharged, for which we developed our Fieldmasters. These are robust (quick) chargers and inverters. A Fieldmaster, combined with a Powerbox, creates a mobile solution for construction sites without grid connection. Some of our Powerboxes even have a built-in inverter and solve power shortages without the need for an extra Fieldmaster.



## Safety

### Certified according to UN ECE R100.03

What makes our Powerboxes really stand out from the rest is that the RESS (Rechargeable Energy Storage System) is officially certified according to the UN ECE R100.03 norms.

This certification emphasizes our commitment to safety and quality and is a unique distinction that reinforces our product's reliability and excellence.

### Mandatory ADR legislation

The mandatory European ADR legislation stickers are clearly visible on our Powerboxes.

# Powerbox 200

## Most mobile Powerbox battery pack

Currently the smallest Powerbox, but definitely not to be underestimated.

With a capacity of 200 kWh, very compact measurements and low weight, the Powerbox 200 offers numerous use cases.

The Powerbox 200 is designed with attention to user convenience. Its integrated single lifting point makes lifting easy, balanced, and quick. A built-in AC inverter with different voltage outputs ensures that multiple electric devices, construction machinery and tools can easily be supplied with electricity.

## Fits on a trailer

The most mobile Powerbox thanks to its low weight and its ideal size.

## Built-in inverter

Thanks to the built-in inverter, only one device has to be transported.



# Powerbox 200

## Technical details

The Powerbox 200 is a lightweight and compact battery pack. This Powerbox is mostly used on a trailer as a power supply for construction sites without a grid connection. An AC inverter is integrated in the Powerbox 200, which is why the Fieldmaster AC is not required.

<b>Model</b>	<b>Capacity</b> (nominal)
Powerbox 200	196 kWh
<b>Battery</b>	<b>Maximum charging capacity</b> (0,75C)
LFP	150 kW DC
<b>Weight</b>	<b>Dimensions</b> (L x W x H)
< 3968 lbs	86 x 28 x 39 inches
<b>To combine with</b>	<b>Certifications</b>
Fieldmaster AC or DC	UN ECE R100.03

### **SOC upper limit**

100%

### **Voltage range**

580 - 695 V

### **Nominal voltage**

600 V

### **Charge temperature range**

-4 tot 104 °F

### **Discharge temperature range**

-4 tot 104 °F

### **Charging protocol**

DIN 70121 and ISO15118

### **Discharge** (continuous power)

250 A

### **Discharge**

DC through GBT connector

### **SOC lower limit**

2%

### **Fast charging connection** (DC)

CCS1

### **Fast charging time**

About 1 hour and 30 minutes

*Specifications are subject to change without notice.  
Typing and printing errors are reserved.*

# Powerbox 300

## Very compact and fully powered

The Powerbox 300 is a compact and mobile battery pack with a generous capacity of 300 kWh. Designed with user convenience in mind: the integrated single lifting point ensures balanced and quick lifting. For instance, when lifting off an electric machine or when moving to a location where it can be used as a stationary battery.

The Powerbox 300 contains a built-in AC converter which makes the Fieldmaster AC unnecessary. The various outputs ensure that multiple electric devices, machines and tools can be easily powered. If you wish to charge DC to DC, the Fieldmaster DC can provide this.

## Designed for extreme conditions

This robust powerhouse is designed to withstand extreme conditions and is exceptionally suitable for dusty and demanding working environments.

## Easily fits on the sidewalk

This Powerbox is small enough to fit on the sidewalk, without hindering traffic, as opposed to traditional electric power solutions.



# Powerbox 300

## Technical details

The Powerbox 300 is a grand, yet compact battery pack. This Powerbox is mostly used as a swappable battery in the electric earthmoving machine, but can also function as a stationary battery. An AC converter is integrated in the Powerbox 300, requiring no Fieldmaster AC.

### Model

Powerbox 300

### Battery

LFP

### Weight

< 5511 lbs

### To combine with

Fieldmaster AC or DC

### Capacity (nominal)

294 kWh

### Maximum charging capacity (0,5C)

150 kW DC

### Dimensions (L x W x H)

86 x 28 x 50 inches

### Certifications

UN ECE R100.03

### SOC upper limit

100%

### Voltage range

580 - 695 V

### Nominal voltage

600 V

### Charge temperature range

-4 tot 104 °F

### Discharge temperature range

-4 tot 104 °F

### Charging protocol

DIN 70121 and ISO15118

### Discharge (continuous power)

250 A

### Discharge

DC through GBT connector

### SOC lower limit

2%

### Fast charging connection (DC)

CCS1

### Fast charging time

About 2 hours

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# Powerbox 400

## Ideal all-rounder with huge capacity

In an electric machine powered by the Powerbox 400, you simply swap in the Powerbox and it provides power to the machine. The Powerbox 400 comes equipped with a single lifting point which makes swapping take less than five minutes.

The Powerbox can double as a stationary battery. Due to its relatively small size, large capacity, and robustness, the Powerbox is the ideal all-rounder in often dusty and demanding work environments. The Powerbox can be useful in many situations.

## Smart placement on-site

In urban areas the Powerbox fits easily on the sidewalk and multiple units can even fit in a single parking spot.

## Compact transport

8 Powerboxes, with a total capacity of 3.2 MWh, can fit on a single low-loader.



# Powerbox 400

## Technical details

The Powerbox 400 is our largest battery pack. It is commonly used as a swap battery in electric earthmoving machines, but it can also function as a stationary battery. With 400 kWh packed into a very compact design, the Powerbox is the ideal energy source for construction sites or as a charging solution for other electric drive systems when combined with the Fieldmaster AC or DC.

<b>Model</b>	<b>Capacity</b> (nominal)
Powerbox 400	384 kWh
<b>Battery</b>	<b>Maximum charging capacity</b> (0,33C)
LFP	120 kW DC
<b>Weight</b>	<b>Dimensions</b> (L x W x H)
6922 lbs	99 x 28 x 50 inches
<b>To combine with</b>	<b>Certifications</b>
Fieldmaster AC or DC	UN ECE R100.03

### **SOC upper limit**

100%

### **Voltage range**

580 - 695 V

### **Nominal voltage**

600 V

### **Charge temperature range**

-4 tot 104 °F

### **Discharge temperature range**

-4 tot 104 °F

### **Charging protocol**

DIN 70121 and ISO15118

### **Discharge** (continuous power)

200 A

### **Discharge**

DC through GBT connector

### **SOC lower limit**

0%

### **Fast charging connection** (DC)

CCS1

### **Fast charging time**

About 3 hours and 20 minutes

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# Fieldmaster DC

## Fast charger plus inverter on-site

The first inverter developed by Staad is the Fieldmaster DC. With this, the Powerbox can discharge at a rate of 120 kW, and this power is sufficient to charge a machine with CCS1 input.

The primary application of the Fieldmaster DC is fast charging, for example, for electric cars and large electric machines with a battery pack or accumulator.

# Fieldmaster DC

## Technical details

The Fieldmaster DC is a DC-DC inverter that, when connected to the Powerbox battery, functions as a mobile fast charger. Through a CCS1 plug, the battery charges at a maximum power of 120 kW. This allows electric vehicles, excavators, or other machines with a CCS1 connection to be charged quickly without a power grid connection (off-grid).

**Model**  
Fieldmaster DC

**Connection type (DC input)**  
GBT/DC

**Weight**  
771 lbs

**To combine with**  
Powerbox 200, 300 and 400

**Maximum current (DC input)**  
200 A

**Connection voltage (DC input)**  
400 ~ 800Vdc (650Vdc nom.)

**Dimensions (L x W x H)**  
39 x 39 x 45 inches

**Charging power**  
0 ~ 120 kW

**Connection type (charging)**  
CCS1

**Charging voltage**  
150 ~ 1000 Vdc

**Charging current**  
0 ~ 300 A

**Cooling**  
Air-cooled

**Operating temperature**  
-4 tot 104 °F

**Standards**  
DIN EN 61557, IEC 60755, IEC 61851-1,  
IEC 6185123 and ISO15118-1/2

**Certification**  
CE

**IP- and IK-Classification**  
IP54, IK10

**Interface protocol**  
OCPP 2.01 J-Son, CAN, MODBUS

*Specifications are subject to change without notice.  
Typing and printing errors are reserved. Please check  
if your vehicle is compatible with the Fieldmaster DC  
first, we are happy to assist you with that.*

# Fieldmaster AC

## Compact AC solution on-site

The low-voltage network in the Netherlands is based on alternating current (AC). As a result, most household electrical devices run on AC power. The slower chargers that are often used, also operate on AC.

The Fieldmaster AC draws a total power of 100 kW from the Powerbox 400 and distributes it to the various connected outputs. The Fieldmaster AC has the following outputs:

### **1 time**

63 A

### **2 times**

32 A

### **4 times**

16 A

*In addition, there are various combinations of outputs possible, ask for the options. The Fieldmaster AC provides a three-phase or construction power connection at any conceivable location.*



# Fieldmaster AC

## Technical details

The Fieldmaster AC is a DC-AC inverter that provides alternating current (AC) coming from the Powerbox battery. On various power connections, multiple users can be connected up to a maximum of 100 kW.

<b>Model</b>	<b>Maximum current (DC input)</b>	<b>Output power (AC output)</b>	<b>Certification</b>
Fieldmaster AC	200 A	100 kW	CE
<b>Connection type (DC input)</b>	<b>Nominal voltage</b>	<b>Voltage (AC output)</b>	<b>Type of protection</b>
GBT/DC	400Vac +/- 10%	230Vac, 400Vac	MCB / MRCD / OVP
<b>Weight</b>	<b>Dimensions (L x W x H)</b>	<b>Operating temperature</b>	
1102 lbs	45 x 45 x 61 inches	-4 tot 104 °F	
<b>To combine with</b>	<b>Nominal charging current (63A)</b>	<b>Standards</b>	
Powerbox 200, 300 and 400	3x 44 A (70% of maximum charging current)	DIN VDE 0100-551, DIN EN 61557-8 and DIN EN 45545-2	

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# Differences at a glance

## Fieldmaster DC

This allows the Powerbox to discharge at a speed of 120 kW, and this power can be used to charge a machine with a CCS1 input.

The primary application of the Fieldmaster DC is fast charging.

## Fieldmaster AC

Most household appliances run on AC alternating current.

The Fieldmaster AC takes a total power of 100 kW from the Powerbox and distributes it across the various connected outputs.

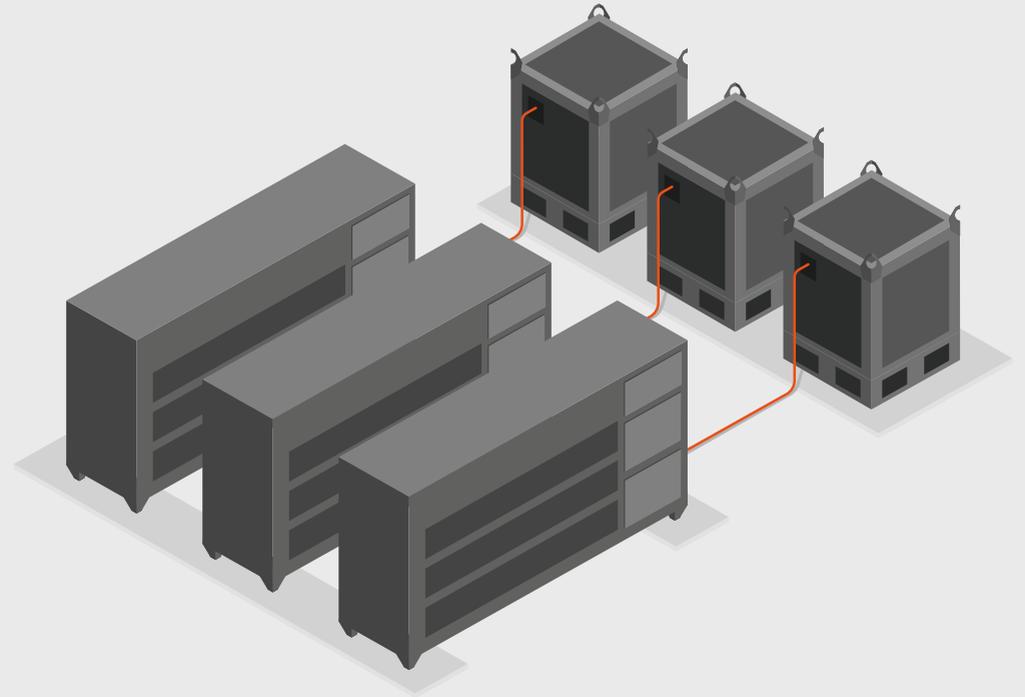
# Staad contributes ideas

## Possibilities and solutions

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No need for a Powerbox? But you are in need of a temporary solution for your power shortage? We are here to solve it!

At Staad, you can rent a Powerbox for a short term or lease it for a longer time.



# staad.<sup>®</sup>

Looking for a mobile power solution?

# Always power, wherever you are

Contact us now!

**STAAD<sup>®</sup>**

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