Operating Instructions

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Battery Charger
Type: E230 G 36/35 B45-FPO
Hako order no.: 97147524

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Controlled battery charger for lead batteries with liquid and solid electrolyte in SNT technology

controlled backup charging – reverse battery protection – protection against short circuit – constant conservation of charge – low AC-current

General information

The housing of the battery charger is made of enclosed sheet metal steel.
The mains connection is made via a special mains connection cable.
Mains fuse (F1): Micro fuse 5x20 mm. Back-up only through value resembles T 10 AH 250V.
The battery charger is protected against short circuits and equipped with a reverse battery protection.
The operating status is indicated with an external LCD-display.
The battery charger should only be opened by qualified personnel.
The charger is especially designed for cleaning machines of the type Scrubmaster B175R and has to be used only in combination with these machines.
Attention: Non-rechargeable batteries can not be charged with this battery charger.

Initial operation

The battery type used in the machine must be set before commissioning (customer service).
The mains connection (230V AC, 50-60Hz) has to be implemented with a delay-action fuse.
The charger is connected to the mains with the mains plug.
To charge the battery, follow the instructions of the battery manufacturer!

Important note

Before using a new battery for the first time, initial operation charge is always required (please see also battery manual). This is accomplished by doing a regular charging process. Only after the charge cycle is fully completed with the “End of Charge” indication, the machine can be used.
For maintenances-free PzV-batteries an additional 15h compensation charge is recommended.

Sequence of connection

The charger has to be disconnected form the mains supply before connecting/disconnecting the charge plug/cables to the battery.

The battery charger complies with the protection regulations of the low voltage guideline 2014/35/EU and the guideline for electromagnetic compatibility 2014/30/EU.

CE

EN 60 335-1
EN 60 335-2-29
EN 60 335-2-72

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Functional description and monitoring of charging process

The battery charger begins to charge automatically as soon as the battery is connected, the mains plug is plugged in and the machine has enabled the charging process. The driving-off protection is a potential-free contact preventing the use of the machine during the charging process.
At first the battery connections are checked at the start of battery charging. During charging, the charging states are sequentially run through and shown on the display. After completing the backup charge, the battery is completely charged. Afterwards the device automatically switches to end of charge with a constant conservation of charge.
An uninterrupted charging process is a prerequisite for a properly fully charged battery. Interrupting the charge in the meantime can cause loss of capacity and premature battery failure.

"**Battery not connected" is detected immediately when switching on the battery charger during operation and also at the latest 60 seconds after disconnecting the battery.**
Please make sure that there is no reverse connection of the battery during this time!
When the battery is connected again, the charger switches on again.

Indication of operating status by the external display

operating status during charging	LCD-display				
					
Main charge V_{Bat} < 2VpC	X				
Main charge		X			
Backup charge			X		
End of charge/Conservation of charge				X	
operating status during malfunction*					**details**
Battery malfunction (battery missing, reverse polarity or defective)				X	V_{Bat} < 0,2 VpC
Battery voltage (during start-up too high)				X	V_{Bat} > 2.4 VpC automatic switch on, as soon as V_{Bat} < 2.4 VpC
Time malfunction (battery capacity too high, battery deeply discharged or defective)		X			V_{Bat} < 1.5 VpC for longer than 40 minutes; constant current phase (I_1) too long
Temperature malfunction (temperature in the charger too high)			X		charger overheated, charger polluted, ambient temperature too high
System malfunction (other defect)				X	internal device error (case of service)

*** If there is a malfunction, the battery frame is flashing once a second.**