



ECONOMIC AND CARING AT THE SAME TIME

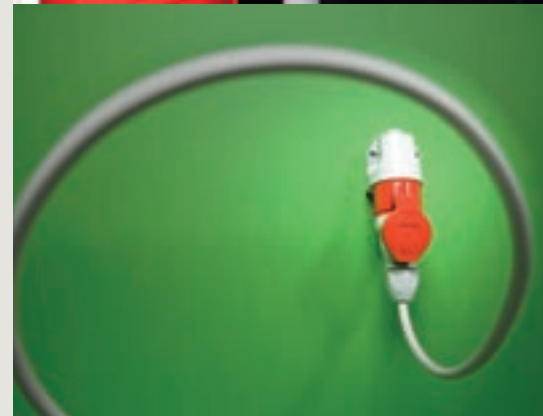
Concept

The Plug-in System is a stand-alone option that permits electrical operation of the RCV's body and tailgate. The achieved result has a reduced impact on the environment, increases the RCV's areas of use, reduces operating costs and thereby increases our customer's competitiveness.

The RCV's lifting and compaction operation is driven by an electric motor, which receives its energy from a battery pack. The battery pack is charged from the mains supply. The battery is optimally charged using cheaper off-peak and environmentally friendly electricity during the night. If necessary, the battery can also be charged from the chassis engine. The Plug-in System is a chassis independent system and can be combined with different types of chassis engines. The technical solution is patent applied for. The Plug-in system is adapted for daily use during the same service life as the chassis, body and tailgate.

Advantages

- Thanks to the electrical operation, **carbon dioxide emissions are 0%** when loading and compacting. This is ideal for residential areas, but also permits collections from garages and other sensitive areas.
- The electric motor is load sensing and do not use more energy than necessary. Results from test operations show a **fuel saving of approx 20%** when installed on a diesel driven chassis. When installing on a hybrid chassis the savings potential is even greater.
- When loading and compacting, the chassis engine is switched off and all operation is powered electrically from the battery pack. The Plug-in System therefore gives a **quieter and smoother operation**, which means a better environment for the operator and the surroundings. This can extend the area of use to all hours of the day.



NORBA AB

BOX 813

SE-391 28 KALMAR, SWEDEN

TEL. +46 (0) 499 275 00

08-01



Technical design

The battery pack is 80V, 480Ah/5h, and consists of two batteries that are mounted at the front edge of the body. These batteries are charged via a battery charger that is located in the cab. Charging is via a 380V, 16A wall socket. The battery drives a 16 kW electric motor that powers the body and tailgate. The distribution box is mounted on rails and can slide forward when required. A battery meter that starts charging automatically when required, controls all battery charging.

The Plug-in System has 3 different operating modes

Normal operation means that the electric motor drives a hydraulic pump that gives power for lifting and compaction.

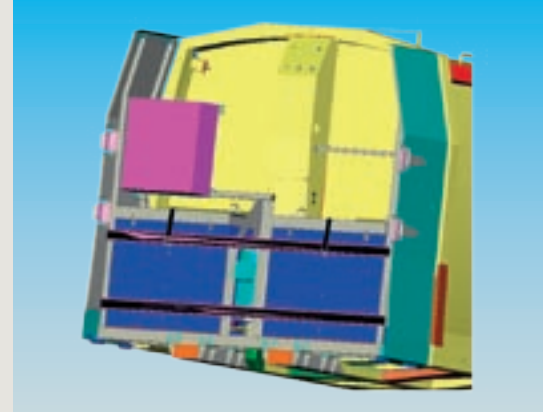
Charging via chassis means that the chassis power take off drives a hydraulic pump, which allows the electric motor to act as generator and so charge the battery while driving. This can be used during collection if the battery level is low for any reason, in order to complete the round.

Emergency operation means that the RCV is operated in the traditional way from the chassis power take off, all electrical operation is switched off. This is intended for use if the battery level is extremely low or in the event of operating difficulties in the batteries or electrical motors.

Technical Data

Battery	80V 480Ah/5h, 38kWh
Charging time	Approx. 6-7hrs (from 40% charge)
Charge current	380V 16A
Electric motor/Generator	16kW
Battery charger	7kW
Weight	approx. 1250kg
Energy consumption	approx. 2kWh/ton

For more information contact your local sales representative.



Norba is certified to ISO 9001 Quality Systems Standards and ISO 14001 Environmental Standards.