

BATTERY HEATERS FOR SCANIA HEAVY TRUCKS

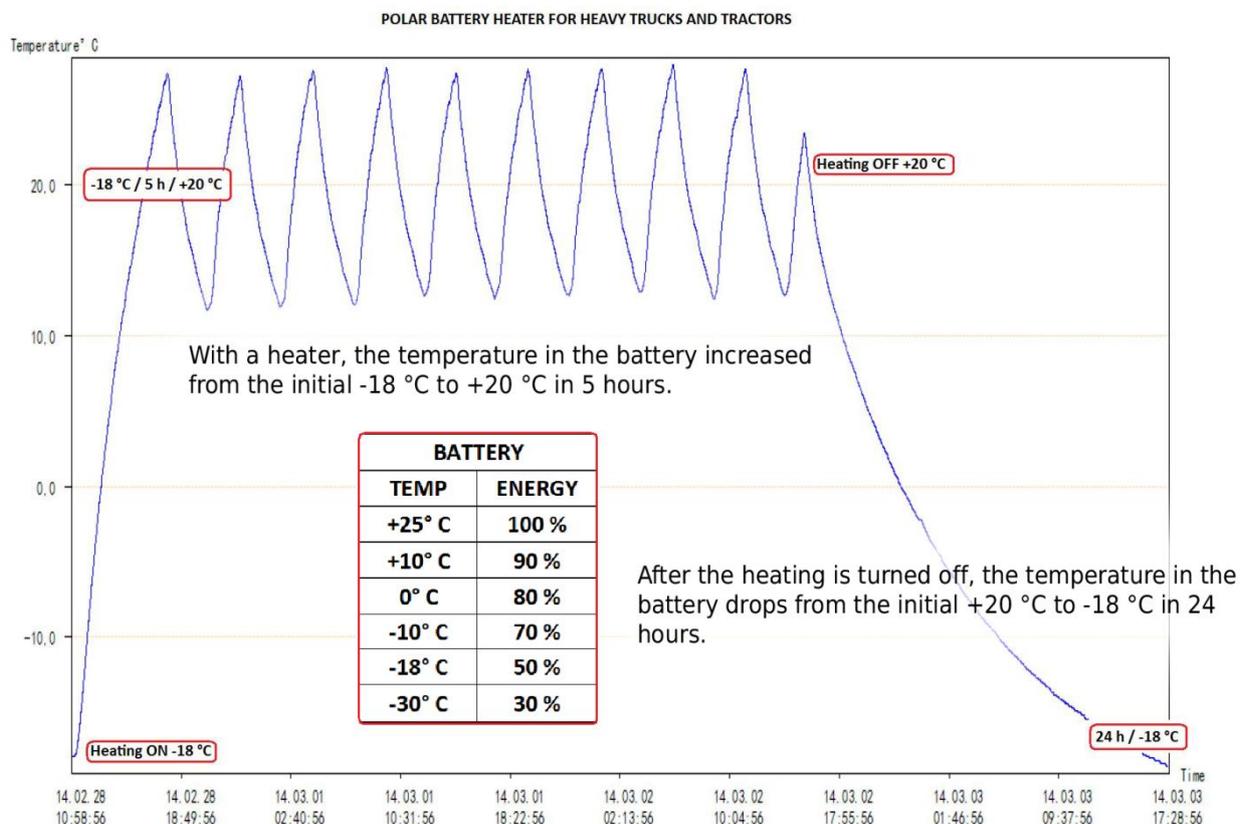
The capability of a battery to recharge decreases as the temperature falls. Below -18 °C the battery's ability to recharge is marginal. With decreasing battery capacity in low temperatures also increases the risk for sulphating. Furthermore, to start a cold engine at a temperature of -18 °C, up to 3.5 times more current is required.

Even if the vehicle has an engine heater connected during the night (resting period), the battery is too far to receive any of this heat from the engine.

Function of the Battery Heater

The Polar Battery Heater has two functions. It will automatically heat up the battery to an optimal operating temperature. Secondly, the battery stays warm even after the heating has been turned off, thanks to the insulation of the battery.

With the Polar Battery Heater there's a temperature rise of about 7.6 °C per hour inside the battery. The power consumption of the heater element is 230 VAC / 120 W.



The ambient temperature was -18 °C for the entirety of the above test.

Our field trials show that the temperature of an insulated battery with a battery heater very seldom falls lower than -10 °C when the outdoor temperature is between -20 °C and -35 °C.

All our tests clearly demonstrate that the Polar Battery Heater enables the battery to retain its full charge even at low outdoor temperatures.

A major advantage of the Polar Battery Heater is related to cold starting properties of the battery. The warmer the battery is, the longer the starter motor is able to work with the given starting current. The higher terminal voltage of a warm battery further improves the chances for starting a cold engine.

Recharge capability

The capability of the battery to recharge deteriorates very rapidly at temperatures below -10 °C. At the same time, the battery's capability to output current also deteriorates. The service life of the battery is also considerably reduced.

The combination of impaired charging capability and simultaneous discharging can give rise of sulphating. That process will reduce the life of battery in long run and should be avoided in all circumstances.

At -18 °C a battery at 50 % charge will only accept around 12 A. This means that the state of charge will stabilize at just above 50 % and thus will stay above the critical limit for freezing.

A battery with less than 50 % charge at a temperature of -30 °C will lead to formation of ice crystals into the electrolyte. Consequently, the battery might to stop working.

A battery with 50 % charging level for a considerable length of time can relatively quickly start forming sulphate. In order to avoid such sulphating process the battery must be charged at appropriate intervals, e.g. in premises for battery service.