GB **Safety instructions**
Battery ready for use

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1. Safety regulations for batteries

Safety instructions have to be observed when handling batteries. These can generally be found on the batteries themselves or in the manufacturer's directions for use and in the vehicle's owner manual. The symbols used have the following means:

Follow the instructions on the battery, in the operating instructions and in the vehicle's owner manual. Keep these operating instructions with the operating manual for the equipment.

It is imperative that you always wear eye protection when doing any work on the battery!

Store acid and batteries out of children's reach. Whenever you do any work on the battery, keep it out of reach of children while doing the work.

Fire, sparks, open lights and smoking are prohibited! Avoid spark formation when handling cables and electrical equipment and caused by electrostatic discharges! Avoid short-circuits. **There is a risk of explosion!**

There is a risk of explosion! A highly explosive gas mixture is created when batteries are being charged.

Risk of chemical burns! Battery acid is highly aggressive. You therefore need to wear safety gloves and eye protection.

First aid! Should any acid should get into your eyes, rinse them out immediately for several minutes with clear water! Then seek immediate medical assistance! Should any acid splash onto hands or clothing, wash off immediately with soap solution and rinse down with plenty of water. Should you swallow any acid, consult a doctor immediately.

Important. Batteries should never be exposed to direct daylight.

Waste disposal. Dispose of old batteries at the appropriate collection point.
Observe the conditions set out in point 3 if the batteries are to be transported.
Never dispose of old batteries in household refuse.

35: Causes severe burns

26:In case of contact with the eyes, rinse out thoroughly with water and consult a doctor.

30: Never pour water into the product.

36/37/39 Wear the necessary protective clothing, safety gloves and safety goggles / face mask when working.

45: Consult a doctor immediately in the event of an accident or if feeling unwell (show this label if possible).

Important. Store under lock and key and out of the reach of children.

2. General notes

Inserting and removing the battery

- Switch off the engine and all power consumers.
- This battery may only be used in the position for which the vehicle manufacturer intended it to be used. Provide good ventilation at all times. It is imperative that you observe the specifications of the vehicle manufacturer.
- Avoid short-circuits, e.g. caused by tools.
- When you remove the battery, disconnect the negative pole first.
- Remove foreign bodies from the surface on which the battery stands and tighten the battery securely once it has been inserted.
- Before insertion: clean the poles and terminals and apply a little pole grease.
- When you insert the battery, connect the positive pole first and make sure that the pole terminals are secure.
- Keep these operating instructions with the operating manual for the vehicle.

3. Storage and transport

If empty the batteries should be stored in a cool and dry place.
Filled batteries need to be fully recharged (see point 5) before they are put into storage (e.g. over the break for winter).
If a protective cap is fitted, leave it on the positive pole.
Batteries need to be protected from direct sunlight.

4. Maintenance

Sealed batteries do not require any maintenance in the form of topping up with water, so you should not reopen the batteries.
Keep the terminal poles and the surface of the battery clean (damp cloth, anti-static), tighten the terminals securely and apply a little grease.
Monitor the charge status of the battery by checking the voltage and recharge as and when necessary (see point 5).

5. Charging the battery

Important! Should you have any uncertainty about charging the battery, have it charged by a specialist workshop.

Given the way in which sealed batteries work, a regulated charging characteristic (CVCC curve or ACL curve) is recommended. Charging with a generator – e.g. in the electrical system of a motorcycle - and the method of charging as shown in Table 2 are best used because of their voltage regulation. The precondition for charging with chargers as shown in Table 1 is that the charging voltage is monitored and that you can disconnect it in case of overvoltage.

Refer to the instructions supplied by the charger manufacturer.

Important!

- If the characteristic curve of the charger manufacturer is unknown, it can be assumed that charging will be unregulated, meaning that the voltage will need to be monitored with a voltmeter and manual disconnection at 14.4V.
- The rated current of the charger should be 1/10 of the rated capacity in amps.
- When you charge the battery, connect the battery to the charger first and then switch on the charger.
- Always ensure that there is good ventilation if you charge the battery in an enclosed space.

Table 1
Unregulated chargers with manual monitoring (acceptable).

Characteristic curve	Applications	Voltage limitation (manual monitoring)
W	Single charge	14.4 volts maximum
Wa*	Single charge	14.4 volts maximum

*Charger with automatic disconnection function in the form of a time switch or temperature monitor.

Table 2
Regulated chargers without additional (recommended).

Characteristic curve	Applications	Voltage limitation
CVCC	Single/multiple charge	14.4 volts maximum
ACL	Single charge	14.4 volts maximum
Wae	Single charge	14.4 volts maximum

Table 3
Reference values for charging times in dependency on battery status and the size of charger.

Open-circuit voltage* (V)	Charge status (%)	Charging time with rated current of the charger
		0.1xrated battery capacity (amps)
>12,7	100	-
approx. 12,5	75	4h
approx. 12,2	50	7h
approx. 12,0	25	11h
approx. 11,8	0	14h

*The open-circuit voltage only settles at a constant value after several hours; it should not, therefore, be measured immediately after charging or discharging. In this case it will be necessary to wait for approx. 2 hours first.