

INSTRUCTIONS FOR USE

TAB MOTION Tubular

TAB 
batteries

Nominal capacity C5:	see battery type
Nominal voltage:	6V and 12V
Discharge current:	C5 / 5h
Nominal electrolyte density:	1,28 kg/l (Golf Cart TS: 1,31 kg/l)
Rated temperature:	30 °C

The batteries have been manufactured in accordance with EN 60254-1.

* The nominal capacity and electrolyte density shall be achieved in the first 10 cycles.

SAFETY REQUIREMENTS
ACCORDING TO EN 50272-3.

1. INSTRUCTIONS FOR ACTIVATING THE SUPPLIED BATTERIES

1.1 Charged batteries:

- + The battery should be examined and checked that it is free from defects.
- + Charging cables must be connected so that they ensure suitable contact and must have the right polarity. Otherwise, the battery, the vehicle or the charger might become damaged.
- + It is necessary to refill the battery before its first use (see item 2.2.).

2. OPERATION

The TAB MOTION Tubular battery operation is governed by the EN 50272-3 standard.

2.1 Discharging

Make sure the openings are not stopped or covered. The electric connections can be joined or cut off only in the event of an open circuit. To achieve optimum battery life, the battery discharge must not exceed the 80 % of nominal capacity. Discharged batteries must be immediately recharged and must not be left empty. The also applies to partially discharged batteries.

2.2 Charging

Only use direct current for charging. All charging processes in accordance with DIN 41773 (IUIa) and DIN 41774 (Wa, WoWa) are allowed. In order to avoid overloading electrical cables and contacts or excess gasification and leaking of the electrolyte from the cells, the battery must be connected to the charger appropriate for its size. During the gasification stage, the current must not exceed the limits specified in EN 50272-3. In the event that you did not buy the charger in a set together with the battery, it is recommended that an official service provider checks its suitability. When charging the battery, it is necessary to ensure suitable ventilation of the charging space, as prescribed in EN 50272-3. The cell vents must remain closed. If the charger is disconnected, connect the battery with the right polarity (the positive connection to the positive pole, the negative connection to the negative pole). Turn on the charger. During charging, the electrolyte temperature rises by approximately 10 °C, while charging is possible only if the electrolyte temperature does not exceed 45 °C. Before charging, the electrolyte temperature must be at least + 10 °C. Otherwise, the battery cannot be charged fully.

Charging is complete when the electrolyte density and battery voltage remain constant for two hours.

2.3 Equalizing Charge

Equalizing charging is performed with the purpose of ensuring a long service life of the battery and to preserve its capacity. It is required after deep discharges, repeat inadequate charges and weekly in the event of charging according to IU characteristics. Equalizing charging is performed after completing the normal charging. The equalizing charge current must not exceed 5A/100 Ah of nominal capacity (completed charging - see item 2.2.). The temperature must not exceed 55 °C!

2.4 Temperature

The rated electrolyte temperature is 30 °C. Higher temperatures shorten the battery's service life and lower temperatures decrease its capacity. 55 °C is the upper temperature limit and is not acceptable as operational temperature.

2.5 Electrolyte

The prescribed electrolyte density relates to the temperature of 30 °C and normal level of electrolyte in the cell at full charge. While higher temperatures decrease the specific electrolyte density, lower temperatures increase it. The correction temperature factor is - 0.0007 kg/l at K. Eg: specified electrolyte density of 1.28 kg/l at 45 °C is equal to a density of 1.29 kg/l at 30 °C. The electrolyte must comply with regulations regarding cleanliness in DIN 43530-2nd part.

3. MAINTENANCE

Upon each charging, the following should be recorded: the time of connecting the battery to the charger, the disconnect time, the electrolyte temperature at the end of charging and the time when battery utilization begins. Record also the filling with water, servicing, maintenance and other exceptional cases.

3.1 Daily

Charge the battery after it becomes empty. Near the end of charging, it is required to check the electrolyte level and, if required, fill up with distilled water up to the prescribed level, namely in the area of the narrow part of the plug. The battery must be filled with distilled water with the conductivity under 30µS/cm a short time before completing the filling. In the event of a multi-shift part of the battery and operations in warm environments, shorter, also daily intervals of filling up are required.

3.1.1. Central Filling System (CNS)

for filling up with distilled water (optional). The central filling system integrated in the batteries is used for maintaining the prescribed electrolyte levels in cells. The electrolyte level is shown by the indicators in the plugs. In winter, the batteries with an integrated CNS must be filled at room temperature above 10 °C. For suitable water pressure and optimal system operations, the water tank must be installed 2 to 6 meters above the upper edge of the battery (pressure 0.2 to 0.6 bar).

The filling process lasts a few minutes and depends on the battery type. The valve and the float in the plug allow for water to flow into each cell and when the prescribed level is achieved, closes the water inflow. The filling process is controlled with the flow indicator that is installed in the supply tube of the battery. During filling, the water flow causes the indicator to rotate. When the valves on all cells are closed, the flow indicator stops; thus the filling process is complete and the water supply should then be closed off and the CNS disconnected. The installed filter must be cleaned of all impurities. When filling water, the charger must be disconnected! The system that was

installed by the manufacturer must not be altered or modified.

3.2 Weekly

Check the battery for bruising and clean it (item 4). If the battery is regularly charged according to IU characteristics, an equalizing charge must be performed (see item 2.3).

3.3 Monthly

After charging completes, it is necessary to measure and record the voltage of all cells, the electrolyte density and temperature. If larger deviations from previous measurements are determined or if differences between individual battery cells are found, an equalizing charging has to be performed (item 2.3) or, if required, further maintenance and battery tests must be performed by the servicing department.

4. BATTERY CARE

The battery must be kept clean and dry at all times in order to prevent creeping currents and thus avoid self-discharging and the possibility of explosion. Clean battery housings and covers and all parts of the vehicle that can be subject to corrosive action. We recommend cleaning with a cloth soaked in water and then wiping until dry.

5. STORING

In the event that the batteries have not been used for a longer period of time, they have to be stored, fully charged in a dry and ventilated room at temperatures between 5 °C to 20 °C. To ensure the batteries are ready to use, you can choose between the following charging methods:

5.1 Monthly Equalizing Charging,

as per item 2.3.

5.2 Maintenance Charging with Constant Voltage of 2.27 V × number of cells.

Battery storage time is taken into account when determining its service life.

6. MALFUNCTIONS

If irregularities are discovered on the battery or charger, suppliers service department should be called in without delay. Measures performed according to item 3.3 will enable the faster discovery of faults and their suitable rectification.

7. TRANSPORTATION

Filled batteries have to be transported in accordance with the requirements of the European Agreement regarding the International Carriage of Dangerous Goods by Road (ADR), except if in accordance with the special ADR provision no. 598.

Special ADR Provision no. 598: The ADR provisions do not apply to new batteries, if:

- + they are secured in such a way that they cannot slip, fall or be damaged;
- + they are provided with carrying devices, unless they are suitably stacked, e.g. on pallets;
- + there are no dangerous traces of alkalis or acids on the outside;
- + they are protected against short circuits.



Pay attention to the operation instructions and affix them close to the battery. Work on batteries is to be carried out by skilled personnel only!



Do not expose batteries to naked flames, glowing embers or sparks, as it may cause the battery to explode.



Use protective glasses and clothes when working on batteries.



Risk of explosion and fire, avoid short circuits! Caution! Metal parts of the battery are always live. Do not place tools or other metal objects on the battery!



Electrolyte is highly corrosive!



Pay attention to the operation instructions and affix them close to the battery. Work on batteries is to be carried out by skilled personnel only!



Dangerous electrical voltage!



Acid splashes in the eyes or on the skin must be washed with water. In case of accident consult a doctor immediately! Clothing contaminated by acid should be washed in water!

NON-COMPLIANCE WITH THESE INSTRUCTIONS, REPAIRS MADE WITHOUT ORIGINAL PARTS OR ADDING ADDITIVES TO THE ELECTROLYTE VOID THE WARRANTY.

Spent batteries must be COLLECTED SEPARATELY and recycled.

