Flexibility due to system components.
The BENNING BFS 2000 can be equipped with various extension levels depending on the desired application.
These include hand controls, which are directly installable on the converter or measuring point multiplexer.
Depending on the design, a diverse range of power plant and rail sector battery types can be inspected and maintained.

Efficiently testing and preparing drive batteries

BENNING battery formation and testing systems increase the maximum useful life of the energy storage system.

Electrically powered industrial trucks, such as forklifts or pickers, mainly use lead-acid batteries as energy storage today. With good care and proper use these batteries have a very long service life of about 1,000 to 1,500 charge cycles.
Given the investment cost of approximately € 3,500 for an average lead-acid traction battery it is necessary to utilise this resource optimally. BENNING has developed a solution that does precisely this.

Companies that specialise in the rental or lease of traction batteries often have hundreds or even thousands of batteries in the field. Their service life and knowledge of the condition of respective batteries therefore contribute significantly to the success of this business model. Therefore, the evaluation of a battery is a key issue, especially in the rental business. Many batteries return from the rental business after several years of operation and some can still provide good, long service as used batteries.

Battery reconditioning makes sense

There are a number of applications where new batteries are not required, and reconditioned batteries are sufficient. This applies to areas in which the batteries are only slightly used. For example, the occasional loading and unloading of trucks. Here refurbished, used batteries can still be used for many years. After all, they are usually considerably cheaper both to purchase and rent. In addition, reconditioning batteries also makes sense from a resource conservation point of view.

Condition not visible from the outside

In practice, therefore, the question of the actual condition of batteries in the field or of returning batteries often arises. Unfortunately, from the outside it is not clear how many charge cycles are still available – a “simple laying on of hands” cannot be carried out as with the measurement of acid density and cell voltage. These measurements are certainly sufficient for a rough assessment, but a qualified statement about the remaining service life is not possible.

The solution is the ‘capacity test’. In this case the battery is first charged and then with a defined current completely discharges to the cut-off voltage. Taking into account some constraint, the remaining capacity can then be determined using this method.

Qualified statements for practice

For the applied testing method, which is described in detail in accordance with DIN, BENNING has manufactured special battery formation and test systems (BFS 2000) for many years. These converters enable reliable testing and can be used for formation processes required in battery production and also for the serial testing of new and used batteries.

Sustainable use of energy

The systems work as charging and discharging equipment in a unit. In a charging process energy is extracted from the grid and fed into the battery in a controlled way. To ensure that the power extracted during discharge of the batteries is not unnecessarily converted into heat, the BENNING BFS 2000 systems work as reversible converters with regenerative feedback.
The extracted energy is stored in the in-house grid and as a result power supplies can be used to efficiently supply other loads. In this way the BFS 2000 helps the operator save energy and costs. With regular use, therefore, e.g. in battery reprocessing, the regenerative power unit also makes sense from an environmental point of view.

Documentation as proof of quality

The BSF 2000 is easy to use in practice, as all formation and testing operations are controlled by software, which records and saves readings.
For protocols, all data is electronically available and can then be further processed and transferred into in-house documentation, for example. This detailed representation of the battery status, including the measured data and protocols, serves as qualified proof of the used battery’s current status. □

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“The key feature of the BFS 2000 is efficient power regeneration through discharge. There are systems on the market that are constructed much more simply and merely convert energy into heat during discharge. This does not make sense from a cost and environmental point of view.”

In March 2015 the battery test facility with 50 stations went into operation.

The BFS 2000 allows a large number of charging and discharging characteristics to be easily parameterised by software.

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