



Traction batteries
Oerlikon perfect plus





oerlikon **batterie** *perfect plus*

The Oerlikon perfect plus motive power batteries provide a high level of power and reliability for all industrial truck applications, from simple applications with a low capacity loading up to heavy duty multi-shift applications.

Why "plus" ?

Compared to the former perfect range, the Oerlikon perfect plus cells provide higher efficiency in discharge achieved by advanced components used in the construction of the positive plates. The sizing of the positive and negative plates has been optimised according to the volume available in the cell boxes. The process of filling the positive plates has been improved. All these technical enhancements have enabled an increase in the cell capacities while keeping the same exterior dimensions. The Oerlikon perfect plus range is at the highest technology level and has a very high efficiency. This improvement integrates the european harmonisation of the DIN and BS ranges. This range meets the dimensions of standards DIN/EN 60254 and IEC 254-2.

Cell construction

All Oerlikon perfect plus cells use the robust tubular vented technology (PzS). The positive electrodes are diecast tubular plates (PzS) and advanced components used in their manufacture provide increased efficiency. The negative plates are flat pasted plates. The separator is of the microporous type. The cell box and lid are made from high impact, temperature resistant polypropylene and are heat-seal welded to prevent electrolyte leakage.

Terminals

The special design of the terminals ensures that no electrolyte can leak from the cells.

Superior efficiency and reliability – Increased capacities

Cell connectors

The cells are joined by fully insulated flexible and halogen free connectors. The bolt-on connectors allow cells to be replaced or moved without excessive work.

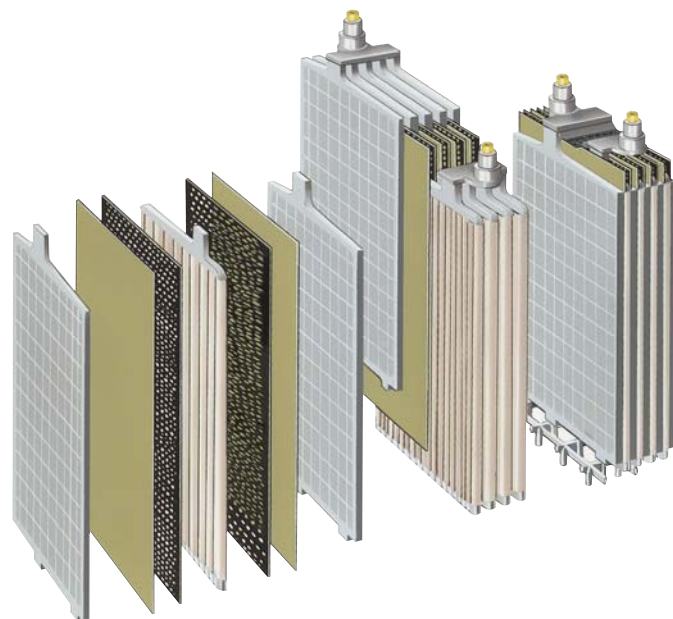


Flip top plugs

Flip top plugs with electrolyte level markings are fitted. These allow adequate escape of charging gasses and provide a safe anti-surge baffle for the electrolyte during operation.

Lid

The lid is equipped with holes for installation of electrolyte circulation system, these can also be used for temperature sensor tests.



Oerlikon aquamatic

The aquamatic water refill system makes it possible to top up all the cells from one central point through an integrated system. The aquamatic vent plugs automatically ensure the optimum filling level and also allow the measurement of electrolyte specific gravity. The aquamatic kit can be expertly fitted at the factory and on site.



Definition of application fields

1. Low duty

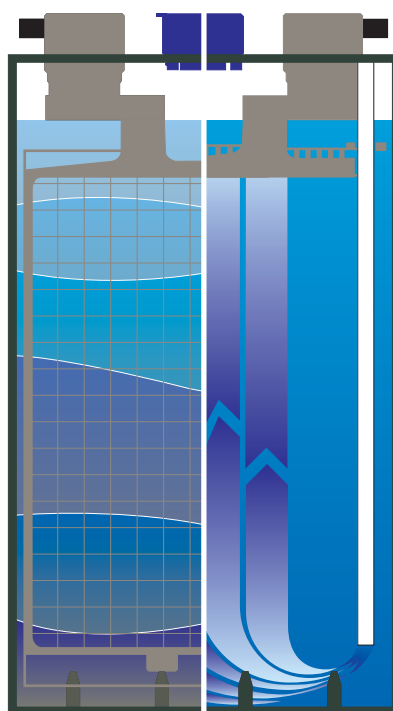
- single shift with light operation and discharge lower than 60% C₅.
- electrolyte T °C about 30 °C

2. Normal duty

- single shift with discharge up to 80% C₅.
- electrolyte T °C 30 °C

3. Heavy duty

- single shift with discharges of 80% C₅ and high discharging currents
- opportunity charging to augment the useable capacity
- multi-shift operation with or without battery changes
- high ambient temperature



Stratification of the electrolyte at different specific gravity levels

Electrolyte circulation

Electrolyte circulation

The Oerlikon electrolyte circulation system, using the AirLift principle, consists of a pipe system which is fitted in the cells. A diaphragm pump sends a low rate airflow into the cell which creates a circulating air stream inside the cell box. This system prevents electrolyte stratification and the battery charging is optimised.

Benefits

Oerlikon perfect plus

- increased capacities in same dimensions
- higher running time and battery availability
- european harmonisation of capacities and sizes in DIN and BS ranges

Oerlikon perfect plus with electrolyte circulation

- no electrolyte and temperature stratification during partial or complete charging process
- optimal charge acceptance by positive and negative electrodes and therefore uniform plate stressing
- charging time shorter by up to 30% and energy savings of up to 20% compared with conventional charging processes
- minimised gassing phase, reduced sludging and water consumption reduced by up to 70%
- temperature rise during charging is up to 10 °C lower, allowing use in warm ambient conditions
- more rapid battery availability for the same nominal charging current due to shorter charging time and therefore higher battery utilisation rate in multiple shift operation
- higher performance and longer battery service life in heavy operation particularly with opportunity charging
- longer maintenance intervals, lower maintenance costs

	1. Low duty	2. Normal duty	3. Heavy duty
Oerlikon perfect plus	[Bar chart showing performance across all three duty cycles]		
Oerlikon perfect plus with electrolyte circulation	[Bar chart showing performance across all three duty cycles]		
Oerlikon Water Less®	[Bar chart showing performance across all three duty cycles]		
Oerlikon Water Less® with electrolyte circulation	[Bar chart showing performance across all three duty cycles]		
Oerlikon evolution	[Bar chart showing performance across all three duty cycles]		



OEB Traktionsbatterien AG
Eichstrasse 44
CH-8152 Glattbrugg
Phone: +41 44 828 10 00
Fax: +41 44 828 10 10

Service: 0800 800 816

Please refer to the website address for details of your nearest EnerSys office:
www.enersys-emea.com

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