FIAMM MOTIVE POWER®

Superior Efficiency and Reliability

Traction batteries Fiamm Motive Power energy plus

EnerSys®
Power/Full Solutions

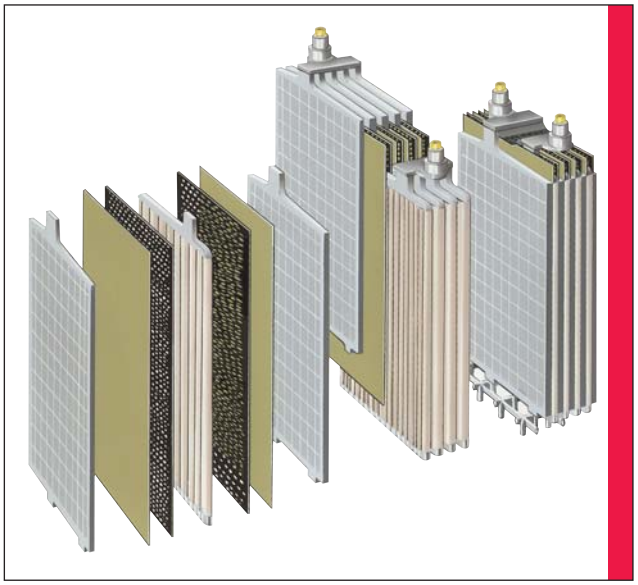
Fiamm Motive Power Traction batteries

Superior efficiency and reliability – Increased capacities

The Fiamm Motive Power energy plus 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" ?

The Fiamm Motive Power energy 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 Fiamm Motive Power energy 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 Fiamm Motive Power energy 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.

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.

Benefits

Fiamm Motive Power energy plus

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

Fiamm Motive Power energy 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

Fiamm Motive Power energy plus		
Fiamm Motive Power energy plus with electrolyte circulation		
Fiamm Motive Power Water Less®		
Fiamm Motive Power Water Less® with electrolyte circulation		
Fiamm Motive Power energy dry		
Low duty	**Normal duty**	**Heavy duty**

FIAMM MOTIVE POWER®

energy plus

Lid

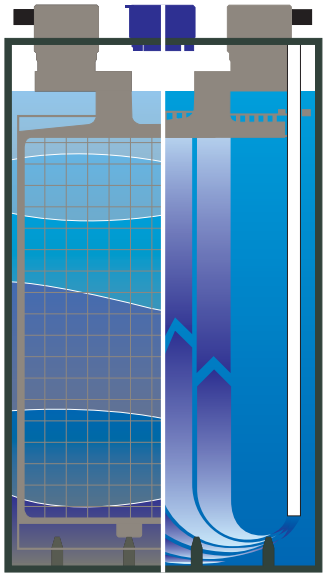
The lid is equipped with holes for installation of electrolyte mixing system, these can also be used for temperature sensor tests.

Aqualevel

The Aqualevel 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 Aqualevel kit can be expertly fitted at the factory and on site.

Electrolyte circulation

The Fiamm Motive Power energy plus electrolyte circulation system, using the Airsystem principle, consists of a pipe system which is fitted in the cells. A diaphragm pump sends a low rate air-flow into the cell which creates a circulating air stream inside the cell box. This system prevents electrolyte stratification and the battery charging is optimised.



Stratification of the electrolyte at different specific gravity levels

Electrolyte circulation

Definition of application fields

1. Low Duty
- Single shift with light operation and discharge lower than 60% C_5
- Electrolyte T°C about 30°C

2. Normal Duty
- Single shift with discharge up to 80%
- Electrolyte T°C about 30°C

3. Heavy Duty
- Single shift with discharges of 80% C_5 and high discharging currents
- Opportunity charging to augment the usable capacity
- Multi-shift operation with or without battery changes
- High ambient temperature

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