HOPPECKE

FNC-A

The ADVANCED Generation of Fiber Nickel Cadmium Batteries

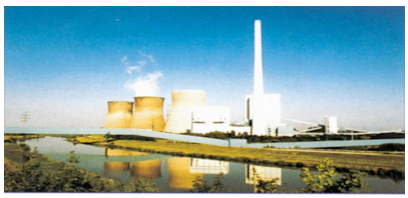
telecommunications

railway

Utilities

atuomatic guided vehicles

power generation



HOPPECKE FNC-A

Experience in development, production and engineering of battery systems

Based on years of experience in the field of nickel-cadmium battery systems utilizing fibre-structured electrodes, HOPPECKE has developed this new generation of products involving exciting new technology.

FNC-A

The special characteristics of the FNC-A design minimize water loss, combined with the already well-known advantages of FNC technology. The new FNC-A range offers significant benefits in the following applications:

+ railways
+ automatic guided vehicle systems
+ UPS
+ switchgear
+ emergency lighting
+ telecommunications

FNC-A

RECOMBINANT- Flooded Technology reduces maintenance

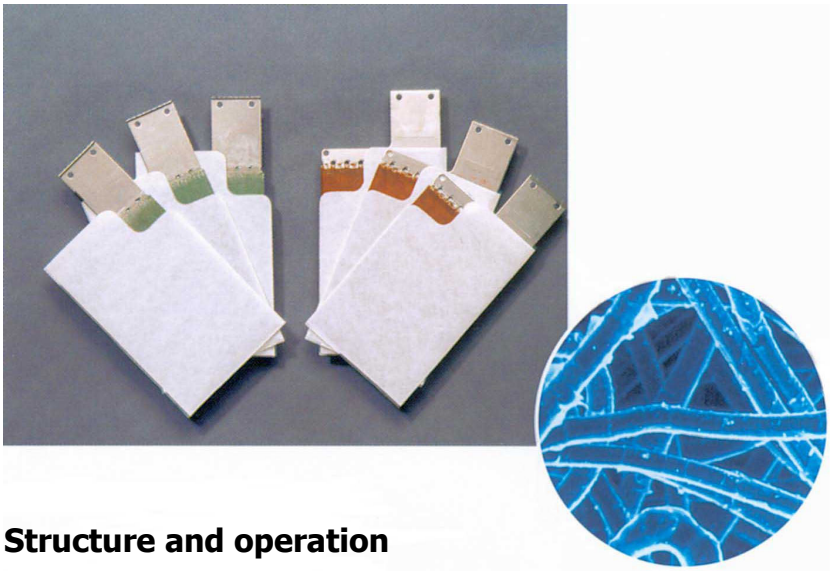
- Higher charge efficiency
- No water maintenance over the life of the battery

The FNC-A is also characterised by

+ optimised electrode composition

+ the use of non-woven fibre pocket separators and narrow spacing of electrodes

+ performance under load typical of the H and X-series as specified in ICE 623, UIC 854, NF F 64-018, DIN 43539

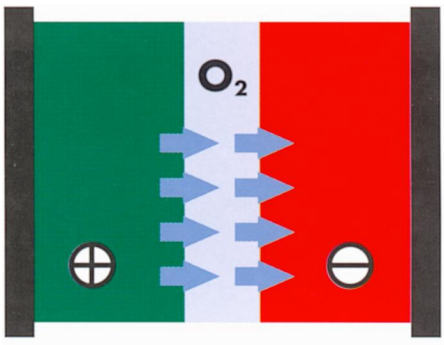


Structure and operation

The electrodes of the FNC-A consists of HOPPECKE's fiber matrix plate design, which have over 20 years proven success in FNC cells.

The familiar benefits of FNC technology also apply to this range of batteries

High energy density	→	High current loads
Highly porous electrodes	→	Compact dimensions
Pure active material	→	No electrolyte replacement
High resistance to cycling	→	Long service life
Flexible design	→	Wide product range



The FNC-A is a flooded recombinant cell design. The oxygen gas produced at the positive plate is forced to recombine with the hydrogen at the negative plate to form water. This process is 98% efficient resulting in higher charge efficiency and no water additon required over the life of the battery.

Hoppecke FNC-A – High performance and Exta-high performance types

Enhanced charge acceptance

FNC-A cells have an improved ability to accept charge.

- Float charge voltage: 1.37 – 1.40 volts per cell
- Equalize charge voltage: 1.42 – 1.45 volts per cell.

Cells can be cycled under these conditions. Charge factors of between 1.02 and 1.05 are typical for these batteries.

Higher energy density

FNC-A cells have an energy density up to 40% higher than that of conventional cells.

Exceptional cycle life

Cycle life of the FNC-A cells exceeds 3,000 80% depth of discharge cycles.

Physical properties

- Case & Lid: polypropylene
- Terminal: Nickel plated steel
- Terminal bolts & washers: M8 stainless steel
- Terminal connectors: nickel plated copper
- Vent: flame arrestor safety vent
- All internal components, nickel plated steel with fiber matrix plates

Design Life

FNC-A cells have the same proven design life of the standard FNC cells of 25 years

Operating Temperature

The FNC-A cells can operate in temperature ranges from –40C to +40C. Higher temperatures up to +60C can be tolerated for short durations.

Low Temperature Performance

The FNC-A design allows for exceptional low temperature performance similar to the FNC-X/H standard cells. The FNC-A X type available performance at –20C is 97% of original performance. At –40C, 85% of the original cell performance is possible.

Compact, stable design

The construction of the electrode assembly enhances the mechanical stability of all electrochemically active elements, which improves the shock and vibration characteristics of the entire system, thereby extending its life under even the most severe mechanical conditions of use.

- All welded internal components
- Full pocket separators for each electrode

Low water consumption and extended service life of FNC-A cells

Under both float charge operation and cyclic loading, FNC A cells have extended service life.

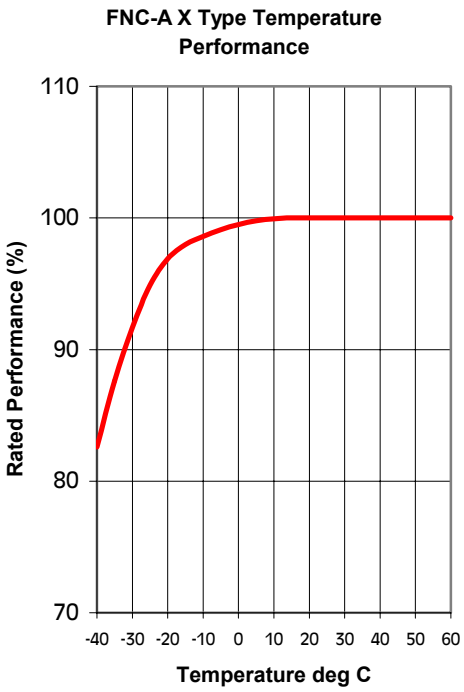
- Typical watering interval service life of 20 years at 20 deg C

Environment

FNC-A cells recombine 95% to 98% of the gas produced in the cell. Because of this it is possible to operate FNC-A cells in the same environments as VRLA cells. Regardless of the battery type, in all cases for safety reasons, ventilation of the battery room is recommended

Experience

The products of the FNC A series are based on the proven fibre-structured electrode technology, introduced by HOPPECKE for the production of alkaline batteries and which give successful service worldwide in the fields of industry, transportation, mining and aerospace.



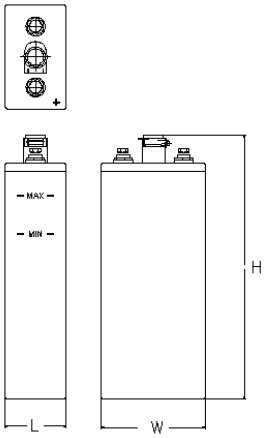
.

FNC-A High Performance Types

Type	Capacity [Ah]	Length inch[mm]	Width inch[mm]	Height inch[mm]	Weight max lbs[kg]
FNC-A 38 H	38	1.85(47)	4.80(122)	12.2(309)	7.26(3.3)
FNC-A 50 H	50	1.85(47)	4.80(122)	12.2(309)	7.48(3.4)
FNC-A 63 H	63	1.85(47)	4.80(122)	12.2(309)	7.7(3.5)
FNC-A 75 H	75	2.83(72)	4.80(122)	12.2(309)	10.56(4.8)
FNC-A 88 H	88	2.83(72)	4.80(122)	12.2(309)	11.0(5.0)
FNC-A 100 H	100	2.83(72)	4.80(122)	12.2(309)	11.44(5.2)
FNC-A 113 H	113	3.62(92)	4.80(122)	12.2(309)	13.64(6.2)
FNC-A 125 H	125	3.62(92)	4.80(122)	12.2(309)	14.08(6.4)
FNC-A 138 H	138	3.62(92)	4.80(122)	12.2(309)	14.52(6.6)
FNC-A 150 H	150	4.53(115)	4.80(122)	12.2(309)	17.38(7.9)
FNC-A 163 H	163	4.53(115)	4.80(122)	12.2(309)	17.82(8.1)
FNC-A 175 H	175	4.53(115)	4.80(122)	12.2(309)	18.26(8.3)
FNC-A 190 H	190	4.53(115)	4.80(122)	12.2(309)	18.7(8.5)

FNC-A Extra-High Performance Types

Type	Capacity [Ah]	Length inch[mm]	Width inch[mm]	Height inch[mm]	Weight max lbs[kg]
FNC-A 32 X	32	1.85(47)	4.80(122)	12.2(309)	6.6(3.0)
FNC-A 48 X	48	1.85(47)	4.80(122)	12.2(309)	8.14(3.7)
FNC-A 64 X	64	2.83(72)	4.80(122)	12.2(309)	10.12(4.6)
FNC-A 80 X	80	2.83(72)	4.80(122)	12.2(309)	11.66(5.3)
FNC-A 95 X	95	3.62(92)	4.80(122)	12.2(309)	13.64(6.2)
FNC-A 110 X	110	3.62(92)	4.80(122)	12.2(309)	14.96(6.8)
FNC-A 125 X	125	3.62(92)	4.80(122)	12.2(309)	16.5(7.5)
FNC-A 140 X	140	4.53(115)	4.80(122)	12.2(309)	17.8(8.1)
FNC-A 150 X	150	4.53(115)	4.80(122)	12.2(309)	18.7(8.5)
FNC-A 160 X	160	4.53(115)	4.80(122)	12.2(309)	19.6(8.9)
FNC-A 170 X	170	4.53(115)	4.80(122)	12.2(309)	20.5(9.3)



Hoppecke Batteries, Inc.
1960 Old Cuthbert Road, Suite 130
Cherry Hill, NJ 08034
Phone: 856-616-0032
Fax: 856-616-0132

HOPPECKE

Rev: 1/14/04 LSM