

# Nickel-Iron Batteries From BeUtilityFree!



Thomas A. Edison invented the nickel-iron battery at the turn of the century while searching for a rugged, long-lived storage battery for electric vehicles. Actual performance records have proven his design with thousands of batteries still in service to day. Nickel-iron battery technology has withstood the test of time. BeUtilityFree™ considers this battery to be the "ultimate" battery for longevity, durability, ruggedness, and ease of maintenance with its translucent battery case. It can offer a lifetime of reliable service for home power systems, railroads, telecommunications, boats, island home power systems, or any other application where "you only want or need to buy just ONE battery and be done with it."

The nickel-iron batteries we offer have been manufactured for over 28 years by a Chinese manufacturing company which has won 36 prizes in their country. The advanced battery manufacturing assembly line was imported from VARTA AG Germany, so the manufacturing equipment they use is very high quality.

These batteries have many advantages listed below. Review them and compare. Once you use a nickel iron battery, you'll never return to lead acid batteries again! Our company is the exclusive importer for North America and South America and we have been importing them into the US from 1995. We have batteries that are over 15 years old and still producing 100% of their rated capacity! These are facts, not myths or half-truths.

## WARRANTY

We have the best 10-year warranty in the home power industry.

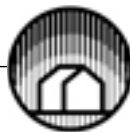
In the first 6 years it offers free cell replacement in case of defect, then 4 years of prorated warranty that expects the battery to be used, not just floated. In other words these batteries like to be worked! Contact us for a copy of the warranty.

## FINANCING

We offer battery financing for those who need it. Not being able to afford these batteries has been a deterrent for many people... until now! There should never be a reason NOT to consider this battery for your next battery bank because of cost. We can finance up to 40% of the cost of this battery. You can take the money you would have paid for a top quality lead-acid battery and get a true lifetime battery instead! No other company selling batteries offers battery financing. We consider the battery the heart of your renewable energy system, so why not purchase your battery just once like other component parts of your system? Contact us for our battery financing flyer.

Battery Features	Nickel-Iron	Lead-Acid
Up to 40-year life	Yes	No
Frequent hydrometer readings	No	Yes
Use on DC to AC inverters (1)	Yes	Yes
Add to system anytime (2)	Yes	No
Bad cell easily removed (3)	Yes	No
Wide operating temperature	Yes	No
Safely fully charge in 5-7 hours	Yes	No
Equalization charge required (4)	Yes	Yes
Has memory effect (5)	No	Yes
Over/undercharging damage	No	Yes
Safely left in any state of charge	Yes	No
Plate sulfation	No	Yes
Toxic substances	No	Yes
Corrosive fumes (6)	No	Yes
HydroCaps™ available	Yes	Yes

1. Most inverters on the market are designed for lead-acid batteries, but NiFe batteries can be used on most inverters today. Buy only inverters that have high and low voltage adjustment or have high and low set points if you can't adjust the voltage. We recommend Exeltech MSX, OutBack, Samptech and Scheidier Electric sine wave inverters. Battery voltage settings should be about 10-16 or higher for 12V battery, 21-34 V for 24V system and 40V-66V for a 48V system.
2. While a lead-acid battery's internal resistance (IR) increases at a steady rate, an alkaline battery's IR stabilizes. Don't mix batteries with different IR's. Lead acid cells you cannot add to a bank after a year. NiFe cells can be added at any time in the future. There is no time limit.
3. NiFe cells are lighter than lead-acid cells and also have lower voltage per cell.
4. Once a year for alkaline batteries recommended and once a month for lead-acid batteries.
5. Some lead-acid batteries have a memory effect. A pocket plate nickel-iron battery doesn't.
6. Nickel-iron batteries produce only hydrogen and oxygen past 80% state of charge. Gases still should be vented to meet electrical code if cells are in an enclosure.



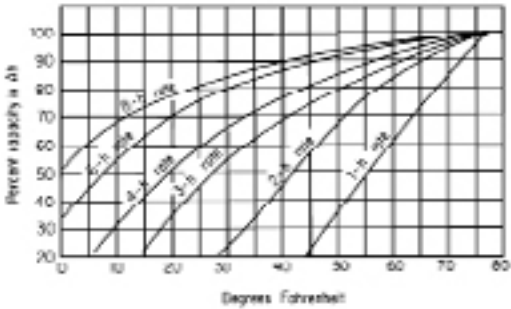
BATTERY OPERATING CHARACTERISTICS

WHY CAN A NICKEL-IRON BATTERY LAST 40 YEARS?

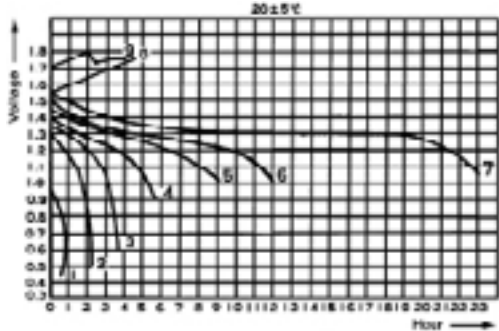
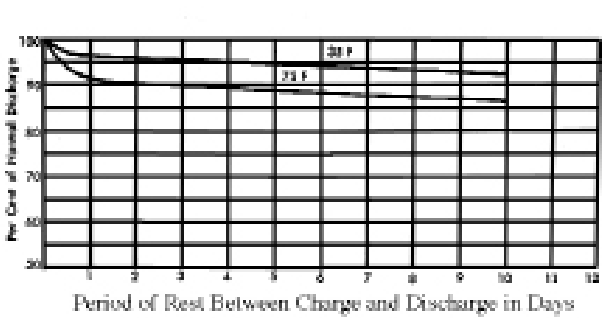
In a lead-acid battery the acidic electrolyte interacts with the plates during every charge and discharge cycle, causing lead to shed off the plates and reducing the battery capacity. From the day you start charging a lead-acid battery you are losing capacity with each use, ending in plate disintegration.

With a nickel-iron battery there is NO chemical interaction between the plates and the electrolyte. In fact the electrolyte used in a nickel-iron battery (potassium hydroxide, i.e. KOH) is a metal preserver.

Exposure to air causes the electrolyte to form potassium carbonate and lose its ability to conduct electricity. One to two electrolyte replacements may be needed to replenish the battery capacity in its lifetime. The need to replace electrolyte depends on many factors, but is relatively easy with proper equipment. This is why we have nickel-iron batteries in the field that are producing 100% of their rated capacity after over 50 years of use!



How cold weather effects performance on the nickel-iron battery.



- 1. 1-hr discharge rate
- 2. 2-hr discharge rate
- 3. 3-hr discharge rate
- 4. 4-hr discharge rate
- 5. 8-hr discharge rate
- 6. 10-hr discharge rate
- 7. 20-hr discharge rate
- 8. Normal charge
- 9. Rapid charge

A fully-charged battery loses charge as it sits. A suitable trickle charge will offset this loss.

BATTERY PRICING AND SPECIFICATIONS

Part #	Ah* Capacity	Dimensions (inches) W x L x H	Dimensions (mm) W x L x H	Weight (lb)	Weight** (kg)	Price Per Cell	12V System	24V System	48V System
7008	122/100	6 x 3 x 15	141 x 80 x 370	15	7	\$101	\$1010	\$2020	\$4040
7009	183/150	7 x 4.2 x 14	164 x 106 x 345	21	10	\$151	\$1510	\$3020	\$6040
7010	244/200	7 x 4.2 x 14	164 x 106 x 345	24	11	\$202	\$2020	\$4040	\$8080
7011	305/250	11 x 6 x 17	276 x 138 x 425	45	20	\$252	\$2520	\$5040	\$10,080
7012	366/300	11 x 6 x 19	276 x 138 x 490	56	25	\$302	\$3020	\$6040	\$12,080
7013	488/400	11 x 6 x 18	276 x 138 x 450	51	23	\$403	\$4030	\$8060	\$16,120
7015	610/500	11 x 6 x 19	276 x 138 x 490	58	26	\$504	\$5040	\$10,080	\$20,160
7016	732/600	12 x 7 x 20	291 x 176 x 510	84	38	\$605	\$6050	\$12,100	\$24,200
7017	854/700	12 x 7 x 20	291 x 176 x 510	86	39	\$706	\$7060	\$14,120	\$28,240
7018	976/800	16 x 8 x 22	398 x 186 x 570	133	60	\$806	\$8060	\$16,120	\$32,240
7019	1080/900	16 x 8 x 22	398 x 186 x 570	137	62	\$909	\$9,090	\$18,180	\$36,360
7020	1220/1000	16 x 8 x 22	398 x 186 x 570	142	64	\$1008	\$10,080	\$20,160	\$40,320

Cells 300 Ah to 600 Ah get a 10% discount. Cells larger than 600 Ah get a 15% discount! Specifications subject to change without notice.

\*Ah for 100 and 5 hr **discharge/charge** rate. Manufacturer **charge** rate is C/5. Batteries are sold by the cell to get end battery voltage. Includes interconnect bars between cells, manual, flip-top battery caps and dry electrolyte chemicals (buyer must by distilled water and add chemicals). For BeUtilityFree to fill and cycle cells,

add \$175 per 10 cells. Buyer pays freight FOB Los Angeles, CA to final destination. Typical cell numbers: 12V: 10 cells, 24V: 18-21 cells, 48V: 36-41 cells. Battery specifications @ 25° C (77° F). Table updated: **November 18, 2010**  
\*\*filled cell



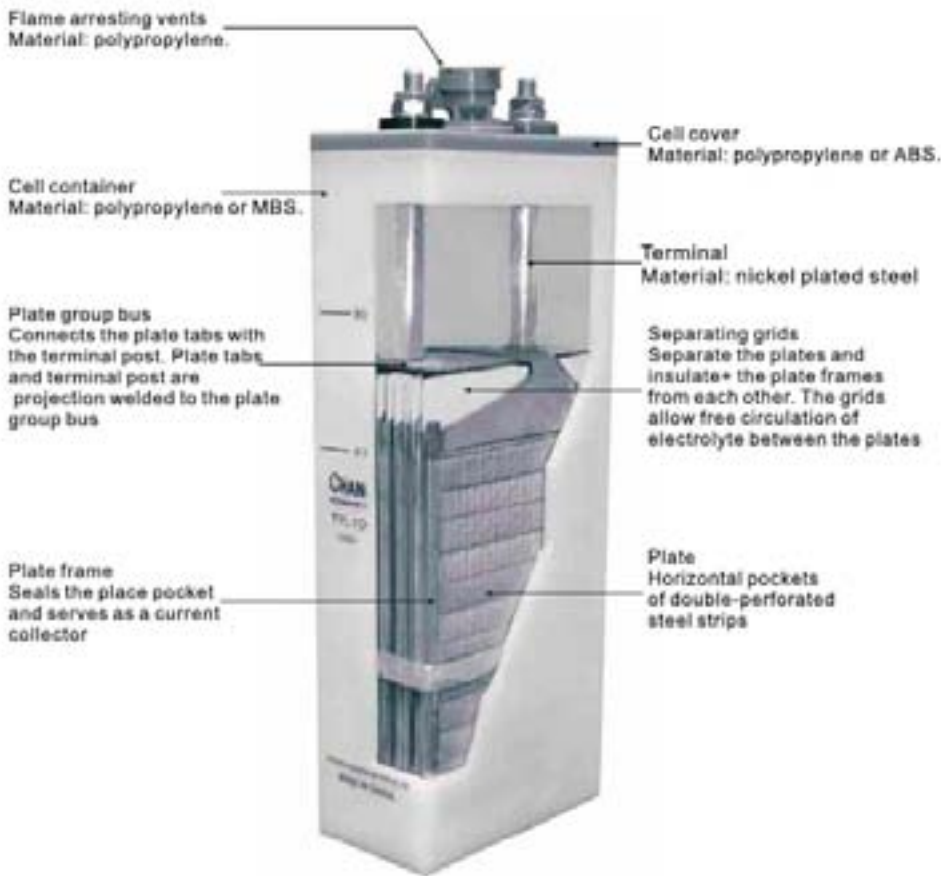
www.beutilityfree.com

1.888.320.9211

8:30-5:30 MST, Mon-Fri

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What's Inside The Nickel-Iron Battery?



NiFe batteries shown in their shipping crates, with orange battery post covers to meet NEC requierments.



A smaller Ni-Fe battery with it's flip-top cap, max and min fill lines and BeUtilityFree logo.



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