



N1500SCJFH • Nickel-Cadmium battery



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1. Scope

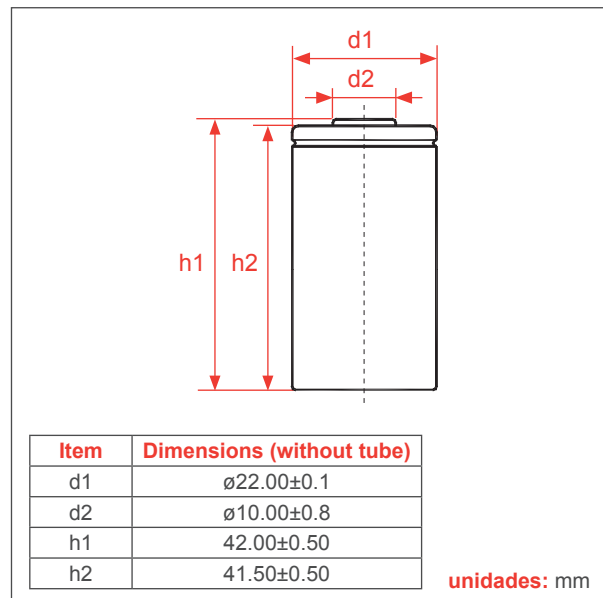
This specification governs the performance of the following FULLWAT High temperature Nickel-Cadmium Cylindrical cell, N1500SCJFH.

2. Stack-up batteries

All data involves voltage and weight to stack-up battery are equal to the value of unit cell time the number of unit cell which consisted in the stack-up stack-up batteries.

3. Specifications an dimensions

Nominal capacity		1500mAh	
Nominal voltage		1.2V	
Charge current	Trickle	75mA	
	Standard	150mA	
Charge time	Trickle	48hrs	
	Standard	16hrs	
Ambient temperature	Charge	Trickle	0 ~ 70°C
		Standard	0 ~ 70°C
	Discharge		-20 ~ 70°C
	Storage		-20 ~ 60°C
Internal Impedance (mΩ) (After charge)		≤14	
Weight		46g	

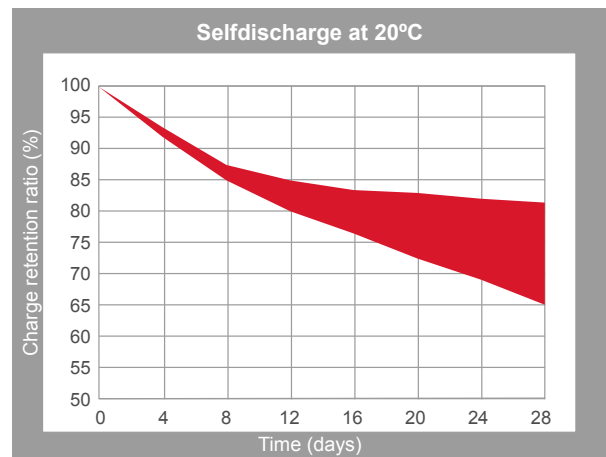
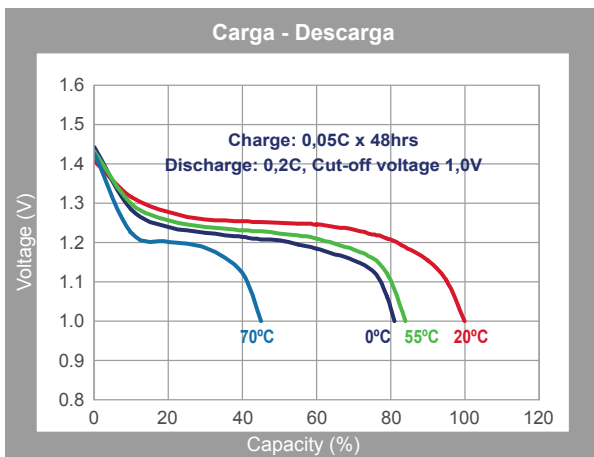
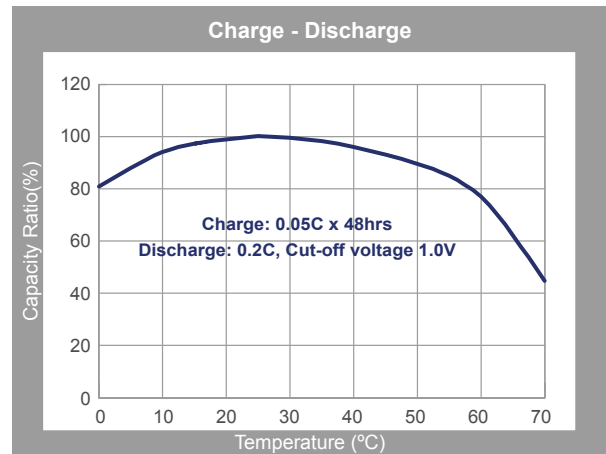
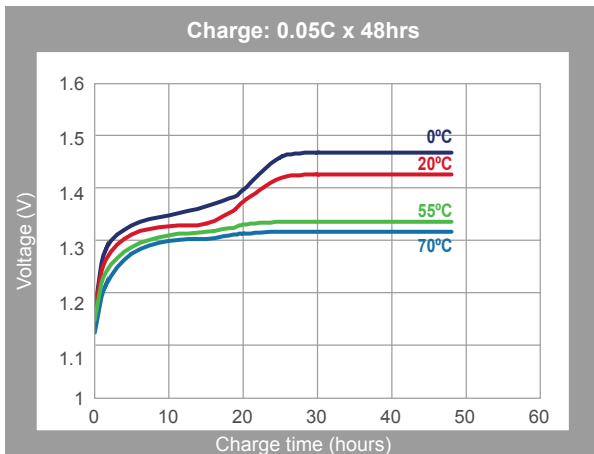


4. Ratings

Description	Unit	Specification	Conditions
Nominal voltage	V/Cell	1.2	Unit cell or stack-up batteries
Nominal capacity	mAh	1500	Standard Charge/Discharge
Standard charge	mA	150 (0.1C)	Ta=20±5°C
	hour	16	
Trickle charge	mA	(0.03C)~(0.05C)	Ta=0~70°C
Standard discharge	mA	300 (0.2C)	Ta= 20±5°C Humidity: Max85%
Discharge cut-off voltage	V/cell	1.0	
Storage temperature	°C	-20~30(Within 1 year)*	Discharged state humidity: Max 85%
		-20~40(Within 6 months)	
		-20~50(Within 1 month)	
		-20~60(Within 1 week)	
Typical Weight	Gram	46	unit cell

* To keep the best performance for those not used for a long time, we recommend to charge and discharge the cells/batteries at least once in every 6 months.

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5 . Performance

Unless otherwise stated, tests should be done within one month of delivery under the following conditions:

Ambient temperature: 20±5°C

Relative humidity: 65±20%

Notes: Standard Charge/Discharge conditions:

Charge: 150 mA(0.1C)× 16 hours

Discharge: 300 mA(0.2C) to 1.0V/cell

Test	Unit	Specification	Condition				Remarks
Capacity	mAh	≥1500	Standard charge/discharge				up to 3 cycles are allowed
Open circuit voltage (OCV)	V	≥1.25	Within 1 hour after standard charge				
Internal impedance	mΩ	≤14	Upon fully charged (1KHz)				
High rate discharge (1C)	min	≥48	Standard charge, 1 hour rest before discharge by 1C to 1.0V/cell				up to 3 cycles are allowed
Charge retention	mAh	≥975	Standard charge, storage 28 days, standard discharge				T=20±5°C
Permanent charge endurance test	min	T1, T2≥225	IEC61951-1(2017)7.5.2.5				See Table 1
	min	T3, T4≥150					
Charge acceptance			Cycle	Charge	Rest	Discharge	See Note 1
			1	0.05C×48h	None	0.2C to 1.0V/cell	
	min	≥225	2	0.05C×24h	None	0.2C to 1.0V/cell	
	min	≥225	3	0.05C×24h	None	0.2C to 1.0V/cell	
IEC Cycle life	Cycle	≥500	IEC61951-1(2017)7.5.1.2				See Table 2
Leakage		No leakage nor deformation	Fully charged at 75mA for 28 days: at 0±2°C.				
Vibration resistance	N/A	Change of voltage should be less than 0.02V/cell, change of impedance should be less than 5 milliohm/cell	Charge the battery at 0.1C for 14hrs, then leave for 24hrs, check battery before/after vibration, amplitude 1.5mm, vibration 3000 CPM, any direction for 60mins.				
Impact resistance	N/A	Change of voltage should be less than 0.02V/cell, change of impedance should be less than 5 milliohm/cell	Charge the battery at 0.1C for 14hrs, then leave for 24hrs, check battery before/after dropped, height 50 cm wooden board (thickness 30mm) direction not specified, 3 times.				

6. External appearance

The cell/battery shall be free from cracks, scars, breakage, rust, discoloration, leakage or deformation.

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7. Warranty

The warranty is specified in our warranties section of *Terms of Sales*. If the product is to be stored for more than three months it is necessary to perform the appropriate maintenance to ensure the good condition of the batteries. Consult our annex to the *Terms of Sales* on the recommended maintenance.

8. Caution

- Reverse charging is not acceptable.
- Charge before use. The cells/batteries are delivered in an uncharged state.
- Do not charge/discharge with more than our specified current.
- Do not short circuit the cell/battery permanent damage to the cells/batteries may result.
- Do not incinerate or mutilate the cells/batteries.
- Do not solder directly to the cells/batteries.
- The expected life may be reduced if the cells/batteries are subjected to adverse conditions as: extreme temperature, deep cycling, excessive overcharge/ over-discharge.
- Store the cells/batteries in a cool dry place. Always discharge batteries before packing.

Table1: IEC61951-1(2017)7.5.2.5 Permanent Charge Endurance Test:

Cycle number	Ambient temperature	Charge	Rest	Discharge	Discharge capacity
1	+50±2°C	0,05Cx48h	None	0.2C hasta 1.0V/cell	
2		0,05Cx24h	None	0.2C hasta 1.0V/cell	T1
3		0,05Cx24h	None	0.2C hasta 1.0V/cell	T2
4	+70±2°C	0,05Cx120d	None	0.2C hasta 1.0V/cell	
5		0,05Cx120d	None	0.2C hasta 1.0V/cell	
6		0,05Cx120d	None	0.2C hasta 1.0V/cell	
7	+50±2°C	0,05Cx48h	None	0.2C hasta 1.0V/cell	
8		0,05Cx24h	None	0.2C hasta 1.0V/cell	T3
9		0,05Cx24h	None	0.2C hasta 1.0V/cell	T4

Table2: IEC61951-1(2017)7.5.1.2 Cycle Life:

Cycle number	Charge	Rest	Discharge
1	0.1C × 16h	None	0.25C × 2h20min
2-48	0.25C × 3h10min	None	0.25C × 2h20min
49	0.25C × 3h10min	None	0.25C to 1.0V/cell
50	0.1C × 16h	None	0.2C to 1.0V/cell

Cycle 1 to 50 shall be repeat until the discharge duration on any 50th cycle becomes less than 3h.

Notes: (1) Before test, the cell shall be discharged at 0.2C to 1.0V/cell, and stored 16h~24h at 55±2°C.
 (2) T_a: Ambient Temperature.