

Narada®



313K SERIES

High Temperature Battery

Breakthrough innovation for energy solution

NARADA POWER SOURCE CO.,LTD.



313K

High Temperature Battery

Designed and manufactured with 8 exclusive patented technologies, Narada have created an innovative range of high temperature batteries. The 313K series is designed to cope with the most extreme temperatures and environments. The advanced technology and unique manufacturing methods enable 313K batteries to deliver at least twice the cycle life of conventional lead-acid batteries, making them the first choice increasing power demands in remote hybrid telecom sites and other tough off-grid applications.

Comply with IEC61427, approved IEC69896-21/22, UL/CE ISO9001 & ISO14100.

Features & Application & Benefits

- Patented anti-corrosion grid technology
- Optimized active material for high temperature conditions
- Unique high temperature case material with HDT in excess of 124°C
- Increased internal compression for improved cycling endurance
- Oxygen catalyst to reduce float currents and extend cycling capability
- Containers & lids UL94 V-0 rated
- Advanced negative plate protection system
- Wide operating temperature range: -40°C to +80°C
- Normal operating temperature is 35°C
- Hybrid Telecom remote base stations
- Renewable energy wind & solar sites
- Grid frequency leveling systems
- All back-up applications where grid reliability is poor
- All extreme environment off-grid systems
- Excellent deep cycling capability
- Suitable for continuous operation at temperatures in excess of 35°C
- Reduced system operating costs
- 25% electricity power saving
- Up to 100% air conditioner maintenance saving
- Up to 100% condensing agent saving
- 30% CO2 gas emission reduce
- Less than 1 year payback period depend on environment

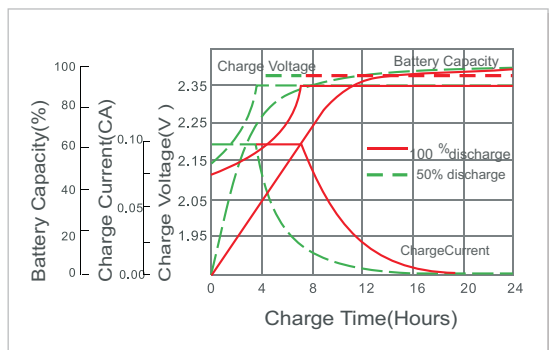
General specifications

Type	Nominal Voltage (V)	Rated Capacity (Ah)		Dimensions (mm)				Weight (kg)	Internal Resistance (mΩ)	Short Circuit Current (A)
		C ₁₀	C ₁₂₀	Length	Width	Height	Total Height			
HTB-200	2	200	240	227	96	291	303	17	0.55	3700
HTB-300	2	300	360	227	133	291	303	24	0.39	4752
HTB-400	2	400	480	227	170	291	303	31	0.30	6107
HTB-500	2	500	600	231	155	396	408	39	0.28	7211
HTB-600	2	600	720	231	180	396	408	46	0.23	8614
HTB-800	2	800	960	231	231	396	408	61	0.18	10873
HTB-1000	2	1000	1200	231	282	396	408	76	0.15	12835
HTB-1200	2	1200	1440	232	263	502	514	90	0.14	13874
HTB-1500	2	1500	1800	235	317	502	514	110	0.12	16882
HTB-2000	2	2000	2400	235	443	502	514	155	0.10	20660

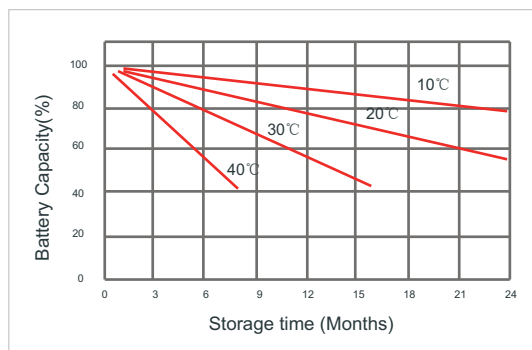
Products characteristics

- Nominal voltage: 2V
- Design life: 15 years at 35°C
- Horizontal installation is recommended
- Self-discharge: <5% per month at 35°C
- Terminal hardware torque: 10-12 N.m
- Recommended charge voltage:
Float charge: 2.24V/cell at 35°C(95°F) ,
temperature compensation coefficient-3mV/°C/cell
Equalize charge: 2.30V/cell at 35°C(95°F) , or case by case
temperature compensation coefficient-5mV/°C/cell

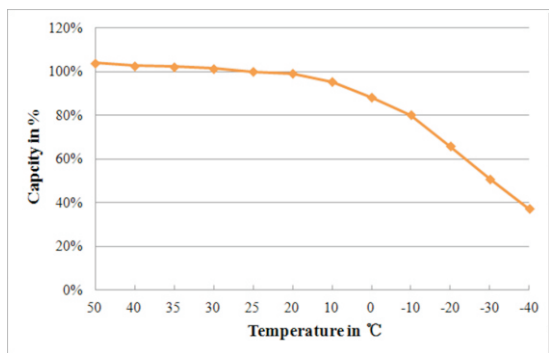
Charge characteristic @ 35 °C



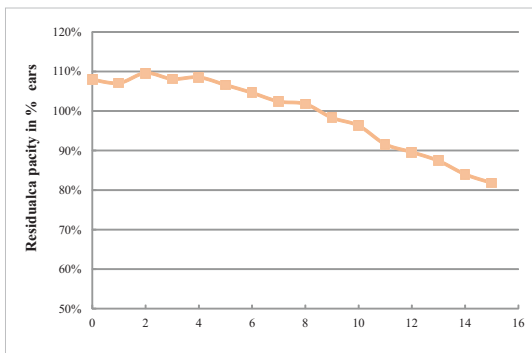
Self-discharge curve



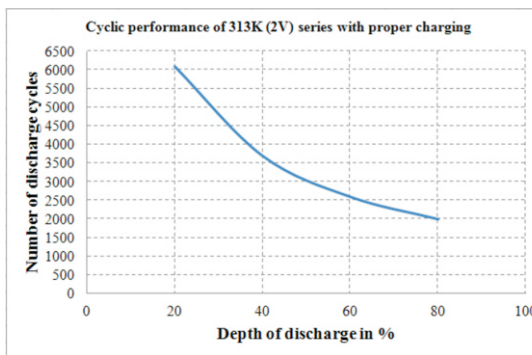
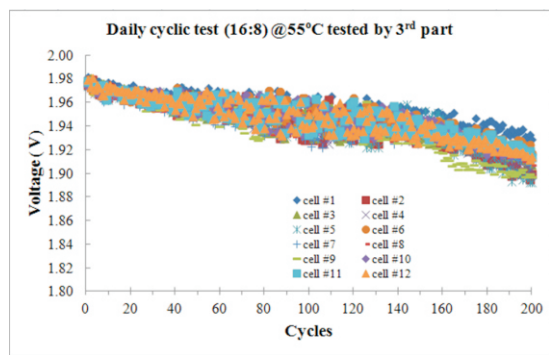
Capacity vs. temperature



Expected life at 35 °C

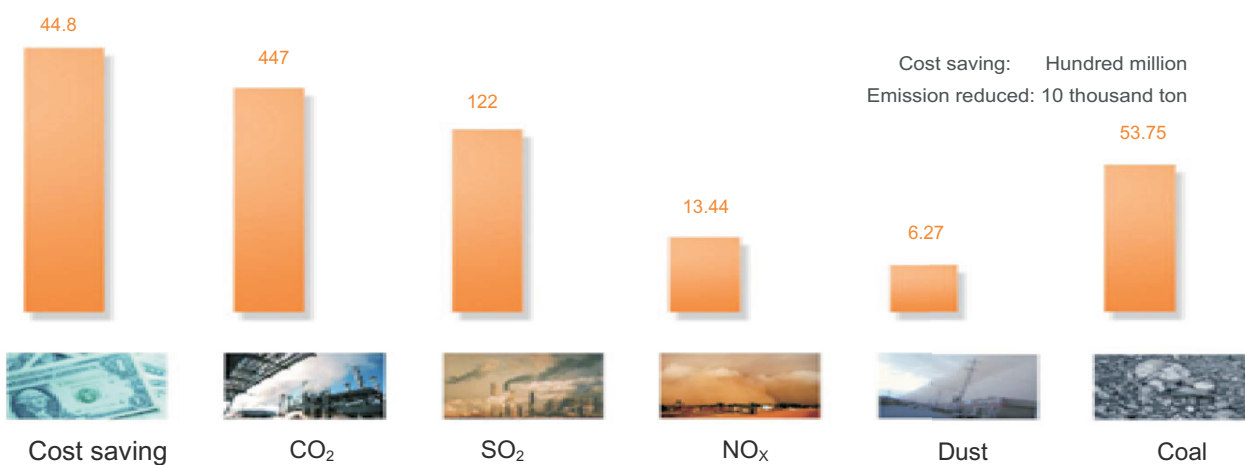


Cyclic performance



Environment friendly

The data from China mobile, China Unicom, China telecom shows that total cooling energy consumption in BTS station is USD 15 hundred millions in 2009, electricity price is USD 0.15 per kWh. According to the calculation of Organization of Environment Protection, if use Narada 313K series High Temperature Battery, energy cost saved and gas emission reduced as below:





Constant current discharge data Units:Amperes (35°C, 95°F)

Type	End voltage per cell	1hr	3hr	5hr	8hr	10hr	24hr	48hr	72hr	120hr	240hr
HTB-200	1.75V	115	53.0	36.8	25.8	21.5	9.58	4.95	3.39	2.15	1.11
	1.80V	108	51.4	36.0	25.3	21.0	9.42	4.83	3.32	2.10	1.08
	1.83V	101	49.8	35.1	24.9	20.6	9.22	4.73	3.24	2.06	1.06
	1.85V	97.5	48.8	34.8	24.6	20.4	9.11	4.71	3.22	2.04	1.05
	1.88V	93.4	47.7	34.4	24.3	20.3	9.03	4.67	3.19	2.03	1.04
	1.90V	86.6	45.7	33.5	23.7	19.8	8.91	4.55	3.11	1.98	1.02
HTB-300	1.75V	173	79.6	55.3	38.7	32.2	14.4	7.43	5.08	3.22	1.66
	1.80V	162	77.1	54.0	37.9	31.5	14.2	7.26	4.97	3.15	1.62
	1.83V	151	74.6	52.7	37.2	30.8	13.9	7.11	4.87	3.08	1.59
	1.85V	146	73.1	52.1	36.8	30.7	13.7	7.06	4.83	3.07	1.58
	1.88V	140	71.6	51.6	36.4	30.4	13.6	7.01	4.79	3.04	1.57
	1.90V	129	68.6	50.2	35.5	29.6	13.4	6.82	4.67	2.96	1.53
HTB-400	1.75V	230	106	73.6	51.6	42.9	19.2	9.90	6.77	4.29	2.21
	1.80V	216	102	71.9	50.6	42.0	18.9	9.68	6.62	4.20	2.16
	1.83V	202	99.5	70.3	49.7	41.1	18.5	9.48	6.48	4.11	2.12
	1.85V	195	97.5	69.6	49.2	40.9	18.3	9.41	6.45	4.09	2.10
	1.88V	186	95.5	68.9	48.6	40.6	18.1	9.34	6.40	4.06	2.09
	1.90V	173	91.5	66.9	47.2	39.5	17.9	9.10	6.22	3.95	2.03
HTB-500	1.75V	288	132	92.1	64.5	53.8	24.0	12.3	8.47	5.38	2.76
	1.80V	270	128	90.0	63.2	52.5	23.6	12.1	8.28	5.30	2.73
	1.83V	253	124	87.8	62.1	51.4	23.1	11.8	8.10	5.20	2.68
	1.85V	243	121	86.9	61.4	51.1	22.7	11.7	8.06	5.11	2.63
	1.88V	233	119	86.0	60.7	50.7	22.5	11.6	7.99	5.00	2.57
	1.90V	216	114	83.6	59.1	49.4	22.2	11.4	7.78	4.94	2.54
HTB-600	1.75V	346	159	110	77.3	64.5	28.8	14.9	10.2	6.45	3.33
	1.80V	324	154	107	75.9	63.0	28.3	14.5	9.93	6.30	3.24
	1.83V	303	149	105	74.6	61.7	27.6	14.2	9.72	6.22	3.20
	1.85V	292	146	104	73.7	61.3	27.3	14.1	9.67	6.13	3.16
	1.88V	280	143	103	72.8	60.8	27.1	14.0	9.59	6.02	3.10
	1.90V	259	137	100	70.9	59.3	26.7	13.7	9.34	5.93	3.05
HTB-800	1.75V	451	218	148	102	85.3	38.5	19.7	13.5	8.53	4.40
	1.80V	429	213	145	100	84.2	37.6	19.4	13.3	8.42	4.34
	1.83V	404	207	143	99.8	83.7	37.6	19.3	13.2	8.37	4.31
	1.85V	378	196	136	96.3	80.8	36.5	18.6	12.8	8.16	4.20
	1.88V	344	184	129	92.8	77.7	35.5	18.0	12.2	7.77	4.00
	1.90V	313	175	123	87.3	73.5	34.2	16.9	11.6	7.35	3.79
HTB-1000	1.75V	564	273	186	127	106	48.0	24.6	16.8	10.7	5.49
	1.80V	536	267	182	125	105	47.0	24.3	16.6	10.5	5.42
	1.83V	505	259	179	124	104	47.0	24.2	16.5	10.5	5.4
	1.85V	473	245	170	120	101	45.7	23.3	15.9	10.2	5.25
	1.88V	430	231	162	116	97.1	44.4	22.3	15.3	9.71	5.00
	1.90V	391	218	154	109	92.0	42.6	21.2	14.5	9.20	4.73
HTB-1200	1.75V	677	327	223	153	128	57.6	29.5	20.2	12.8	6.59
	1.80V	643	320	218	150	126	56.4	29.1	19.9	12.6	6.51
	1.83V	607	310	214	149	125	56.4	29.0	19.8	12.5	6.48
	1.85V	568	294	204	144	121	54.8	27.9	19.1	12.2	6.30
	1.88V	516	277	195	139	116	53.2	26.8	18.4	11.6	6.01
	1.90V	469	262	185	131	110	51.2	25.4	17.4	11.0	5.68
HTB-1500	1.75V	846	409	279	191	159	72.1	36.8	25.2	16.0	8.24
	1.80V	804	400	272	188	157	70.6	36.4	24.9	15.8	8.13
	1.83V	758	388	268	187	157	70.6	36.2	24.8	15.7	8.09
	1.85V	710	367	255	180	151	68.5	34.9	23.9	15.3	7.88
	1.88V	645	346	243	174	145	66.5	33.6	23.0	14.6	7.51
	1.90V	587	328	231	163	138	64.0	31.8	21.7	13.8	7.11
HTB-2000	1.75V	1129	546	372	255	213	96.1	49.2	33.7	21.3	10.9
	1.80V	1072	534	363	250	210	94.0	48.5	33.2	21.0	10.8
	1.83V	1011	518	358	249	209	94.0	48.2	33.0	20.9	10.7
	1.85V	947	490	341	240	201	91.4	46.5	31.8	20.4	10.5
	1.88V	880	462	325	231	194	88.6	44.8	30.6	19.4	10.0
	1.90V	783	437	308	218	183	85.3	42.3	29.0	18.4	9.48

313K series-01 -EN- May 2010 - subject to revisions without prior notice. E.&OE.

