



VISION Rechargeable Products  
Sealed Lead Acid Battery

[www.vision-batt.com](http://www.vision-batt.com)

## HP&HF Series

### High Rate Discharge

The new VISION HP/HF series batteries are specially designed for applications where need high power output. By optimum design of battery grids and platepaste formula, the HP/HF series can deliver up to 40% more power than VISION standard CP/FM series.

Shenzhen Center power tech co., ltd has more than 15 year's experience in the manufacturing of VRLA batteries. SZCPT is one of the biggest manufacturers of SLA (or VRLA) batteries in the world, the biggest one in Mainland China and the first in China to develop and commercialize the sealed lead-acid battery with brand name VISION and has been at the forefront of battery technology from day one.

SZCPT leads the world in innovative battery technology. Our global network of sales and service engineers, backed in turn by our agents and distributors, means that we are currently active in more than 100 countries.

Shenzhen Center Power Tech. Co., Ltd

## HF12-211W-X 12V 45Ah

(Edition June 2004)

### General Features

- Positive and negative plates in lead-calcium tin alloy
- Superior energy density
- Operates at a low internal pressure.
- Gas Recombination
- Usable in any orientation
- A recognized component of UL
- Very high power output
- Application specific designs
- A couple Range from 13W to 890W per cell for 10' @ 1.60Vpc
- Six months shelf life at 20°C
- Design life 10 years



### Dimensions and Weight

	SI Units	English Units
Length	197mm	7.76inch
Width	165mm	6.50inch
Height	170mm	6.69inch
Total Height	170mm	6.69inch
Approx. Weight	14.7Kg	32.4lbs

### Performance Characteristics

- Nominal Voltage 12V
- Number of cell 6
- Nominal Capacity 68°F(20°C)
  - 10 min wattage @ 1.6V 211W/cell
  - 20 hour rate (2.33A, 10.5V) 46.6Ah
- Nominal Capacity 77°F(25°C)
  - 10 hour rate (4.50A, 10.8V) 45.0Ah
- Internal Resistance
  - Fully Charged battery 68°F(20°C) 6.1mOhms
- Self-Discharge
  - 3% of capacity declined per month at 20°C(average)
- Operating Temperature Range
  - Discharge -20~60°C
  - Charge -10~60°C
  - Storage -20~60°C
- Max. Discharge Current 68°F(20°C) 450A(5s)
- Charge Methods: Constant Voltage Charge 68°F(20°C)
  - Cycle use 14.5-14.7V
  - Maximum charging current 13.5A
  - Temperature compensation -30mV/°C
- Standby use 13.6-13.8V
  - Temperature compensation -20mV/°C



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## Discharge Data

Constant Current Discharge Data ( Amperes at 20°C )																									
End Voltage Per cell / V	5min	10min	15min	20min	25min	30min	35min	40min	45min	50min	55min	1h	1.5h	2h	2.5h	3h	4h	5h	6h	7h	8h	9h	10h	12h	24h
1.60	176	121	94.4	75.5	64.1	56.5	50.2	45.5	41.9	38.2	35.2	32.6	23.1	18.3	15.4	13.5	10.6	8.82	7.56	6.66	5.99	5.46	5.04	4.27	2.18
1.65	165	114	89.5	71.5	60.8	53.6	47.7	43.3	39.8	36.4	33.5	31.1	22.1	17.5	14.8	13.0	10.1	8.46	7.26	6.40	5.76	5.25	4.85	4.12	2.10
1.70	155	107	84.6	67.6	57.4	50.7	45.1	41.0	37.8	34.5	31.9	29.6	21.0	16.7	14.1	12.4	9.70	8.10	6.96	6.14	5.52	5.04	4.66	3.97	2.03
1.75	144	101	79.7	63.7	54.1	47.8	42.6	38.8	35.8	32.7	30.2	28.1	20.0	15.9	13.4	11.8	9.26	7.74	6.65	5.87	5.29	4.84	4.47	3.81	1.96
1.80	138	97.1	76.9	61.7	52.6	46.5	41.5	37.8	34.9	31.9	29.5	27.5	19.5	15.6	13.2	11.6	9.09	7.60	6.54	5.77	5.20	4.76	4.40	3.76	1.93

Constant Power Discharge Data ( Watts per cell at 20°C )																									
End Voltage Per cell / V	5min	10min	15min	20min	25min	30min	35min	40min	45min	50min	55min	1h	1.5h	2h	2.5h	3h	4h	5h	6h	7h	8h	9h	10h	12h	24h
1.60	312	211	168	134	113	99.3	87.7	78.9	72.1	66.5	61.9	58.0	41.5	33.3	28.4	25.1	20.0	17.0	14.6	12.8	11.5	10.4	9.62	8.3	4.48
1.65	299	203	163	129	109	96.1	84.9	76.5	70.0	64.5	60.1	56.4	40.4	32.4	27.7	24.5	19.6	16.6	14.2	12.5	11.2	10.2	9.43	8.15	4.41
1.70	286	195	157	125	106	92.9	82.1	74.1	67.8	62.6	58.4	54.8	39.3	31.6	26.9	23.8	19.1	16.3	13.9	12.2	11.0	10.0	9.23	8.01	4.34
1.75	272	187	151	120	102	89.6	79.4	71.7	65.7	60.7	56.6	53.2	38.2	30.7	26.2	23.2	18.6	15.9	13.6	12.0	10.8	9.80	9.04	7.87	4.26
1.80	259	179	145	116	98.1	86.4	76.6	69.2	63.5	58.7	54.9	51.6	37.1	29.9	25.5	22.6	18.2	15.5	13.3	11.7	10.5	9.59	8.85	7.72	4.19

(Note) The above characteristics data are average values obtained within three charge/discharge cycles not the minimum values.

## Performance drawings

