



NICKEL CADMIUM ALKALINE BATTERIES



HONDA DENKI CO., LTD.



INTRODUCTION

■ INTRODUCTION

HONDA Alkaline Batteries are manufactured by a highly streamlined and unique production system in which all processes for making the battery components, ranging from active materials to electrode plates, are automated. The uniform quality of electrode plates made in varied thicknesses by this system ensures the best quality of the end products, batteries. Among the many batteries developed by Honda, HDV Type (very high rate type) is known to be the best in the world for its superior quality.

Today, HONDA Batteries are widely in use throughout the world, even at very cold places as in Siberia and very hot places as in the Middle East.

■ A SELECTION OF THE WORLD USERS



ASIA

BAHRAIN
BANGLADESH
BURUNEI
D.P.R. OF KOREA
HONG KONG
INDIA
INDONESIA
IRAN
IRAQ
JAPAN
JORDAN
KUWAIT
LEBANON
MALAYSIA

MYANMAR

OMAN
PAKISTAN
CHINA
PHILIPPINES
R. OF KOREA
QATAR
SAUDI ARABIA
SINGAPORE
SRILANKA
SOUTH YEMEN
TAIWAN
THAILAND
TURKEY
UNITED ARAB EMIRATES

AFRICA

ALGERIA
EGYPT
KENYA
LIBYA
MALAWI
SOUTH AFRICA
SUDAN
TANZANIA
TUNISIA
ZAIRE

AMERICA

ARGENTINA
BOLIVIA
BRAZIL
CANADA
CHILE
COLOMBIA
CUBA
DOMINICA
EL SALVADOR
GUYANA
HONDURAS
JAMAICA
MEXICO
PERU
URUGUAY

EUROPE

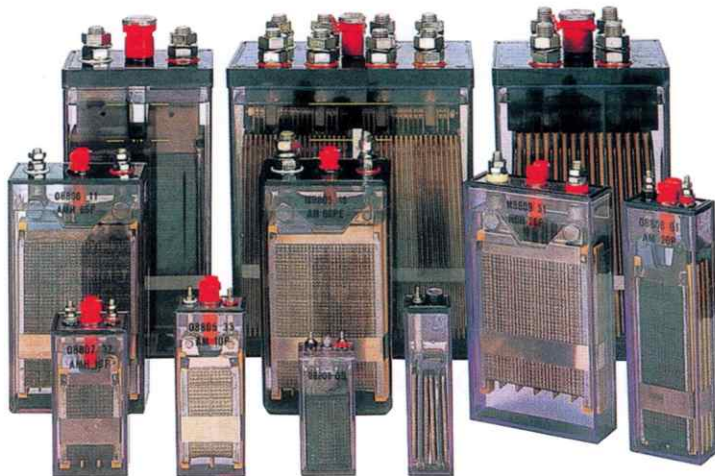
IRELAND
GREECE

OCEANIA

AUSTRALIA
FIJI ISLANDS
NEW ZEALAND
PAPUA NEW GUINEA
WESTERN SAMOA

RUSSIA

HONDA ALKALINE BATTERIES



MAIN FEATURES OF HONDA ALKALINE BATTERIES

MAIN FEATURES OF HONDA ALKALINE BATTERY

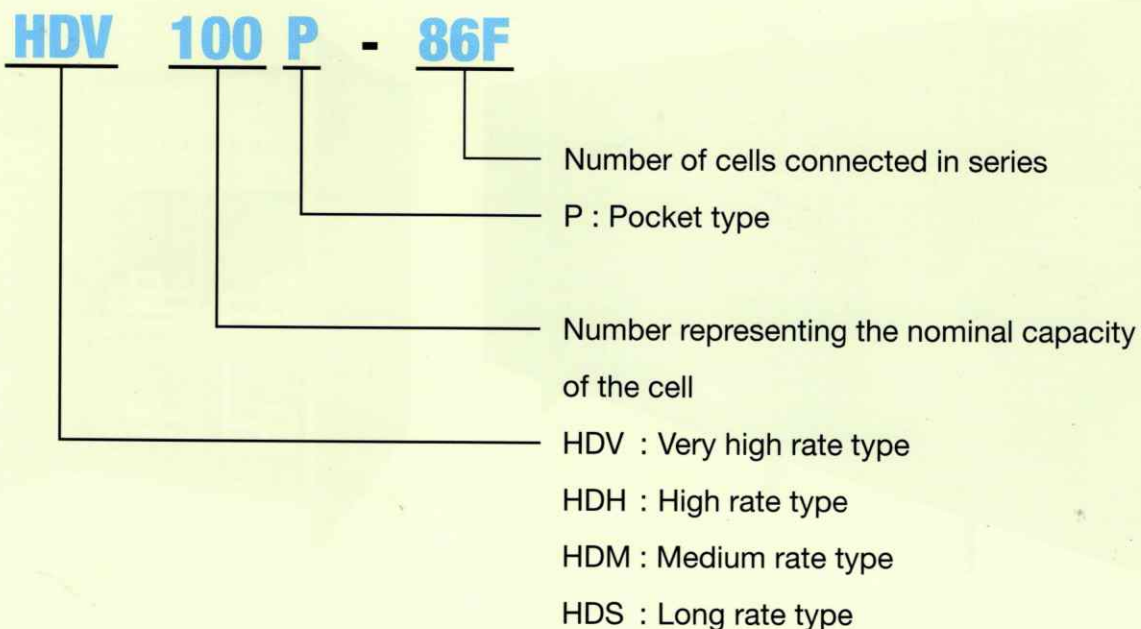
- Most Reliable of All Storage Batteries
- Super Electrical Performance Characteristics
- Very Long Life
- Mechanically Strong and Stands Rough Handling
- Large Available Capacity for Stable Performance
- Excellent Low-temperature Characteristics
- Lowest Self-discharge
- Light Weight & Compact Size
- No Corrosive Gases Generated
- Minimum Maintenance.

CELL TYPE (IEC: Publication 60623)

Classification By Performance	Designation by HONDA	Classification by IEC Standards
Very High-rate Type	HDV	KPX
High-rate Type	HDH	KPH
Medium-rate Type	HDM	KPM
Long-rate Type	HDS	KPL

MODEL IDENTIFICATION OF HONDA BATTERY

Symbols used to identify the models of Honda vented pocket type alkaline battery are given, for example, as follows;



TO SELECT THE MOST COST-EFFECTIVE TYPE

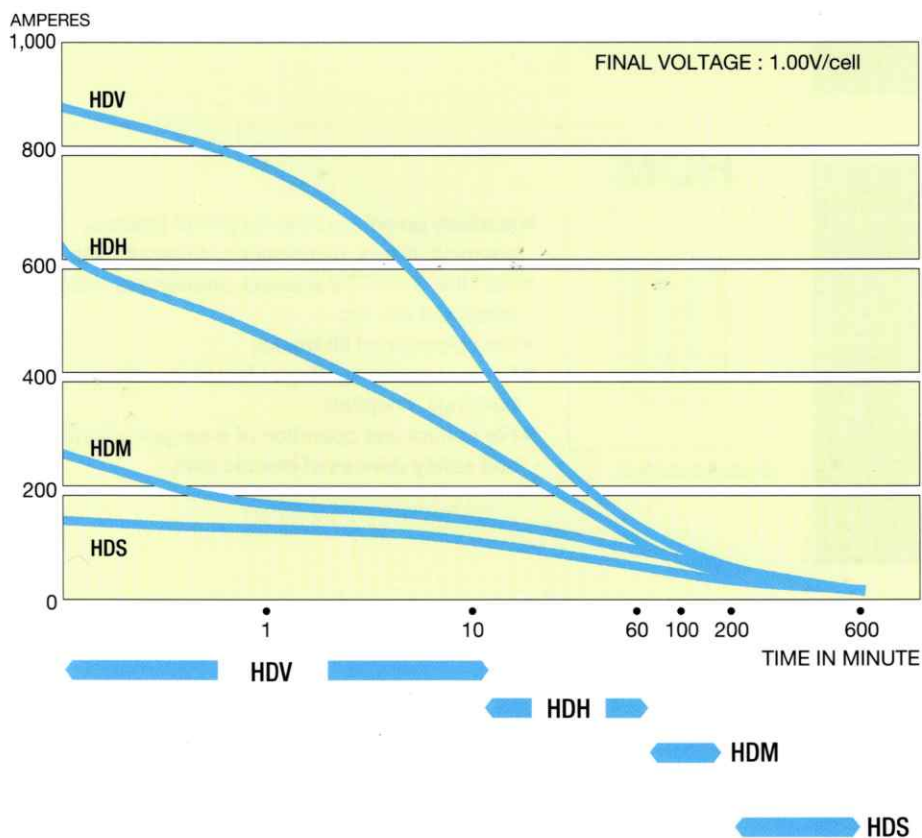
Honda Pocket Type Nickel Cadmium Alkaline Battery comes in four different basic types, HDV, HDH, HDM and HDS as previously mentioned. This permits you to select from among them the most suitable and cost-effective type according to the purpose of use and performance requirements, the discharge time in particular.

LOAD REQUIREMENT

- Both HDV and HDH types are suitable for short-time, heavy load.
- HDM type is for short-time, medium load requirement.
- HDS type is for long-time, continuous discharge.

The maximum available current and related discharge characteristics of each cell type shown below can be used as a useful yardstick selecting the most suitable/cost-effective type of Honda Alkaline Battery that best meets your requirements.

COMPARISON OF HONDA CELLS BY TYPE FOR THEIR DISCHARGE CHARACTERISTICS & MOST ECONOMICAL USE TIME



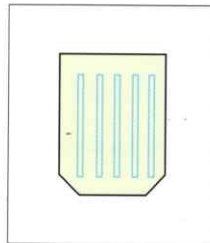
NOTE: Each cell type is represented here by a cell with 100 Ah capacity.

HONDA ALKALINE BATTERIES APPLICATIONS

TYPICAL APPLICATIONS

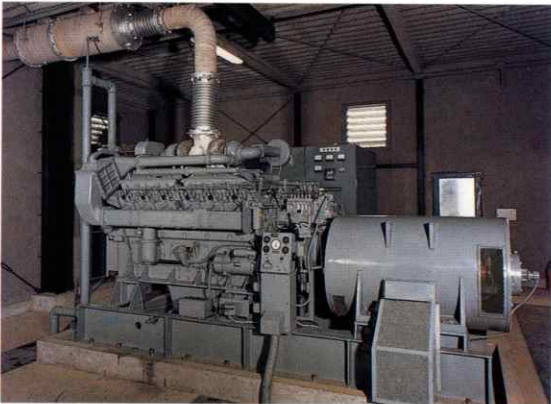


HDV

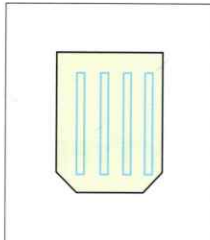


Very High-Rate Type

- For engine starting, gas turbine generators.
- For operation/control of computer systems.
- For central control systems of power plants, transportation networks, chemical plants, iron/steel manufacturing plants.
- For AC uninterruptible power supply systems.
- For emergency operation of elevators, emergency exit doors.
- For operation of portable or movable welding machines.



HDH

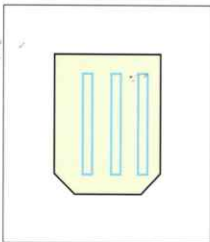


High-Rate Type

- For operation of CB in power stations and substations.
- For engine starting, gas turbine generators.
- For operation and control of DC motors.
- For monitor/control systems for buildings, water treatment plants, solid wastes disposal plants, airports, highways, etc.



HDM

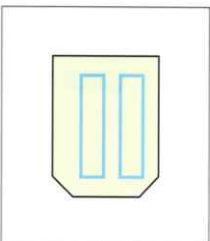


Medium-Rate Type

- Auxiliary power sources for power stations, chemical plants, oil refineries, ironworks, etc.
- For UHF & VHF TV stations, unattended radio relay stations, etc.
- For operation of lift trucks.
- For emergency lighting at factories, office buildings, hospitals.
- For control and operation of emergency lighting and safety devices of electric cars.



HDS

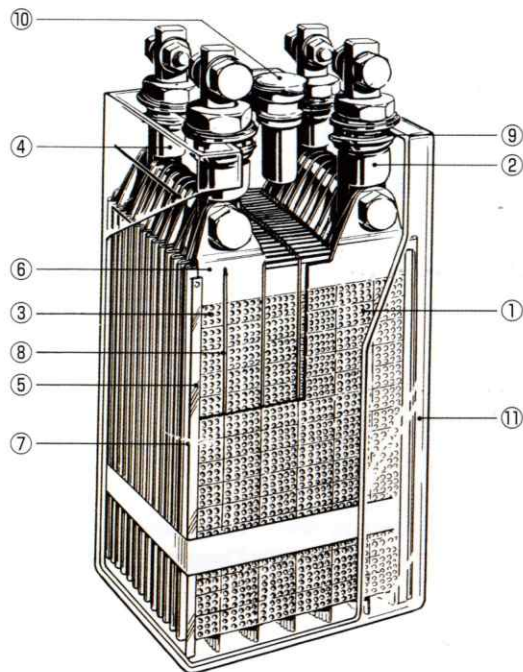


Long-Rate Type

- For lighting and air conditioner control on a train.
- For operation of radio and other communication equipment on a ship.
- For solar energy systems.
- For operation of telemetering systems that monitor rainfall, water level, waves, etc.
- For monitoring, telemetering, control and protection of broadcasting and communication equipment and telephone switchboards.

SECTIONED VIEWS OF HONDA ALKALINE CELL

Plastic Container Cell



- ① Positive plate
- ② Positive post
- ③ Negative plate
- ④ Negative post
- ⑤ Plate frame
- ⑥ Plate tab
- ⑦ Edge insulator
- ⑧ Separating rod
- ⑨ Packing gland
- ⑩ Vent
- ⑪ Container

TYPICAL MAINTENANCE TOOLS

 Level Inspector	 Funnel	 Rust Preventive
 Syringe Hydrometer	 Electrolyte Jug	 Maintenance Tool Box
 Rod Thermometer	 Pole Nut Spanner	

Note: DC voltmeter, purified water, and electrolyte (solid) will be provided only when so requested.

CELL DIMENSIONS AND CELL PERFORMANCE

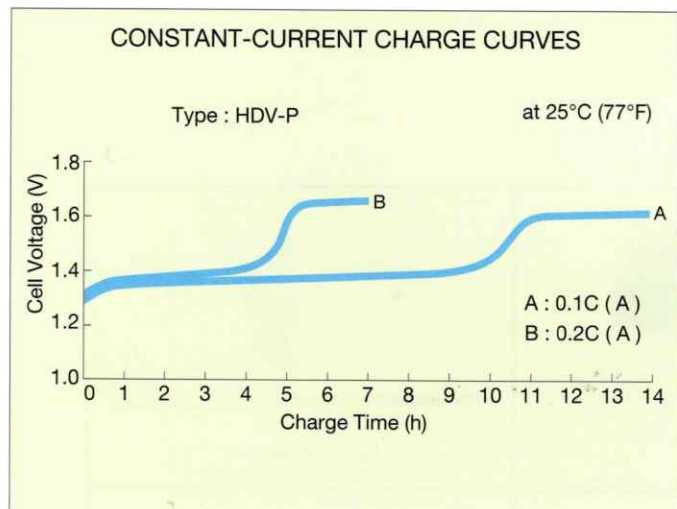
VERY HIGH-RATE TYPE HDV-P

Dimensional Data (Plastic Container)

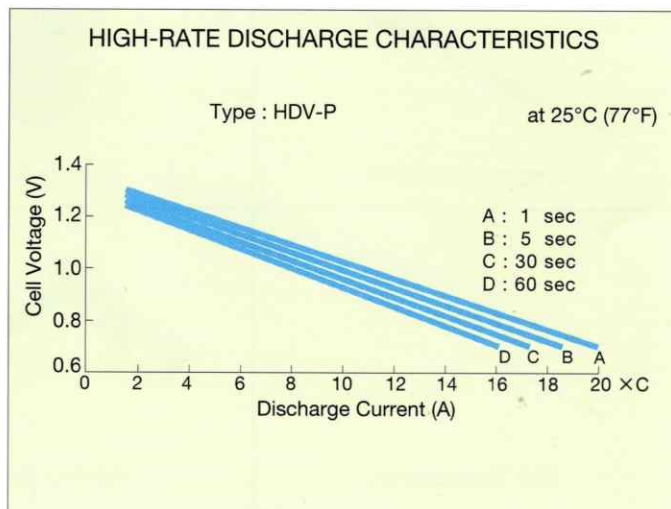
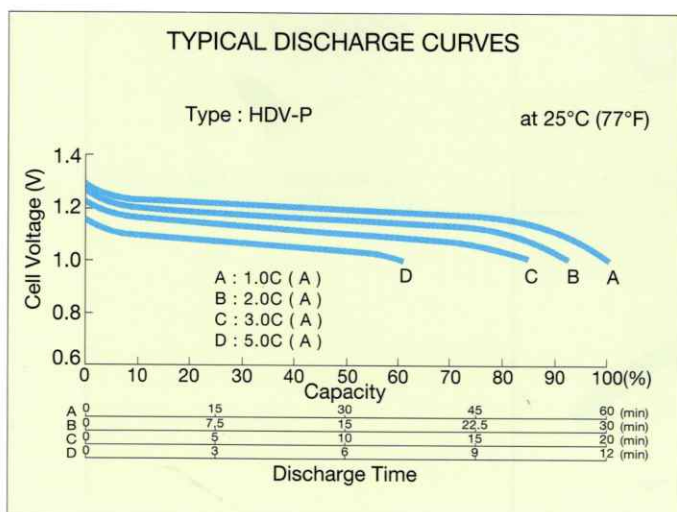
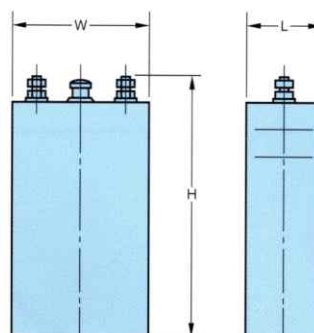
Cell type	Rated Capacity (Ah/1H.R.)	Dimensions (mm)			Approx. Weight (kg)	Approx. Electrolyte (ℓ)
		Height	Width	Length		
HDV 10P	10	272	143	52	2.8	0.9
HDV 20P	20	272	143	52	3.1	0.7
HDV 30P	30	282	143	76	4.7	1.3
HDV 40P	40	282	143	76	5.2	1.0
HDV 50P	50	282	145	100	6.9	1.4
HDV 60P	60	282	145	100	7.2	1.2
HDV 80P	80	373	170	120	11.0	2.8
HDV 100P	100	373	170	120	12.0	2.4
HDV 120P	120	373	170	195	17.0	5.3
HDV 150P	150	373	170	195	19.5	4.6
HDV 200P	200	373	170	195	20.7	3.2
HDV 250P	250	373	170	285	31.0	6.4
HDV 300P	300	373	170	390	39.0	9.4
HDV 350P	350	373	170	390	42.0	8.6
HDV 400P	400	375	170	515	51.0	13.0
HDV 450P	450	375	170	515	55.0	12.0

* The nominal capacity refers to the 1h discharge rate to an end voltage of 1.00V/cell after charging for 7 hours with 5h-rate (0.2×C amps.)

Performance Data



Plastic Container



CELL DIMENSIONS AND CELL PERFORMANCE

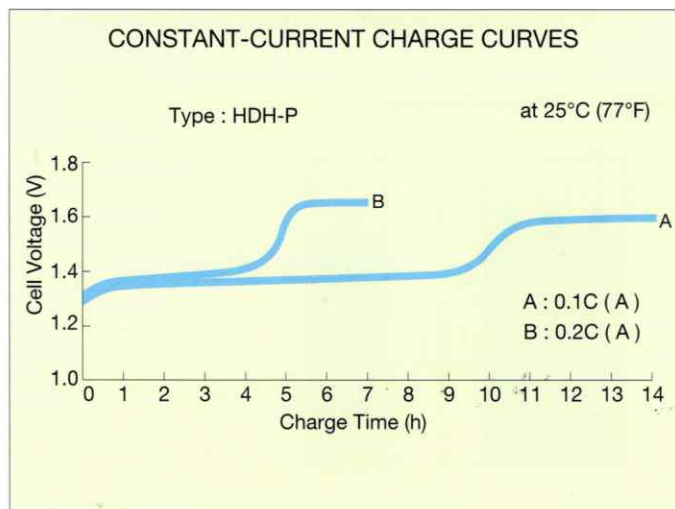
HIGH-RATE TYPE HDH-P

Dimensional Data (Plastic Container)

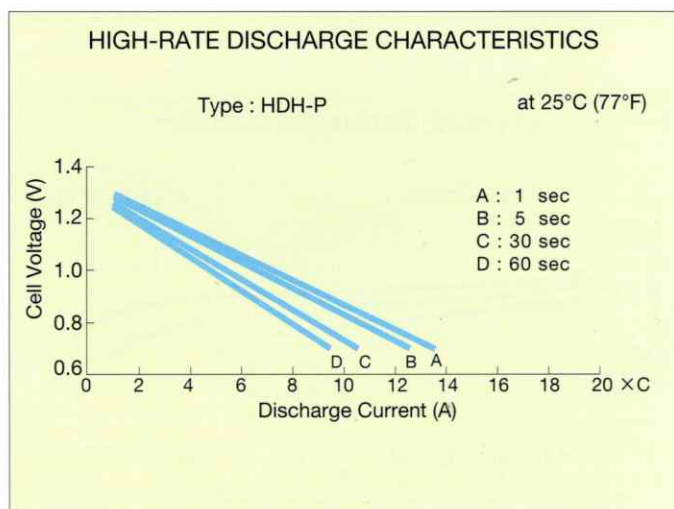
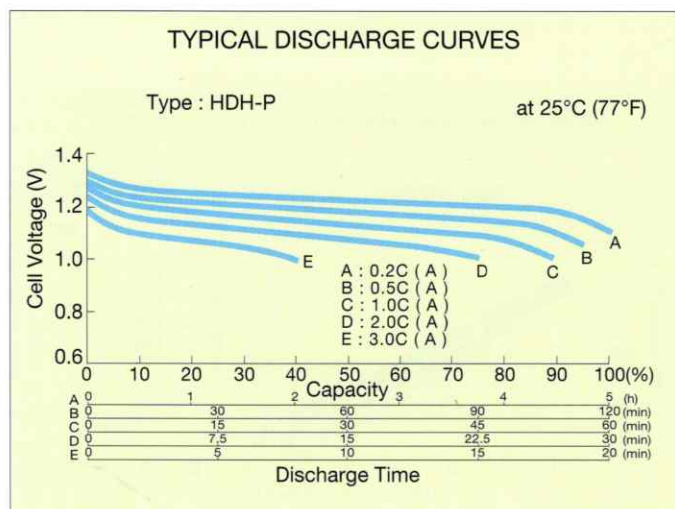
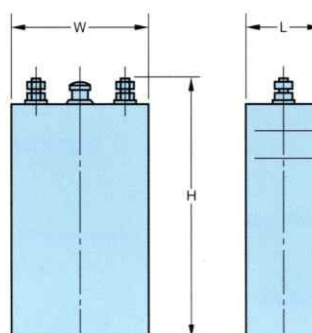
Cell type	Rated Capacity (Ah/5H.R.)	Dimensions (mm)			Approx. Weight (kg)	Approx. Electrolyte (ℓ)
		Height	Width	Length		
HDH 10P	10	160	73	60	1.2	0.3
HDH 20P	20	272	143	52	2.9	0.9
HDH 30P	30	272	143	52	3.2	0.7
HDH 40P	40	272	143	52	3.4	0.5
HDH 50P	50	272	143	76	4.7	1.1
HDH 60P	60	280	145	100	6.1	1.6
HDH 80P	80	280	145	100	6.6	1.3
HDH 100P	100	370	170	120	11.0	3.2
HDH 120P	120	370	170	120	12.0	2.9
HDH 150P	150	370	170	120	13.0	2.6
HDH 200P	200	370	170	195	19.0	5.2
HDH 250P	250	370	170	195	21.5	4.4
HDH 300P	300	370	170	285	29.0	7.8
HDH 350P	350	370	170	285	31.0	7.2
HDH 400P	400	370	170	285	32.5	6.7
HDH 450P	450	370	170	390	43.5	10.0
HDH 500P	500	370	170	390	45.0	9.5
HDH 600P	600	372	170	515	56.0	13.5
HDH 700P	700	372	170	515	60.0	12.0

*The nominal capacity refers to the 5h discharge rate to an end voltage of 1.10V/cell after charging for 7 hours with 5h-rate (0.2×C amps.)

Performance Data



Plastic Container



CELL DIMENSIONS AND CELL PERFORMANCE

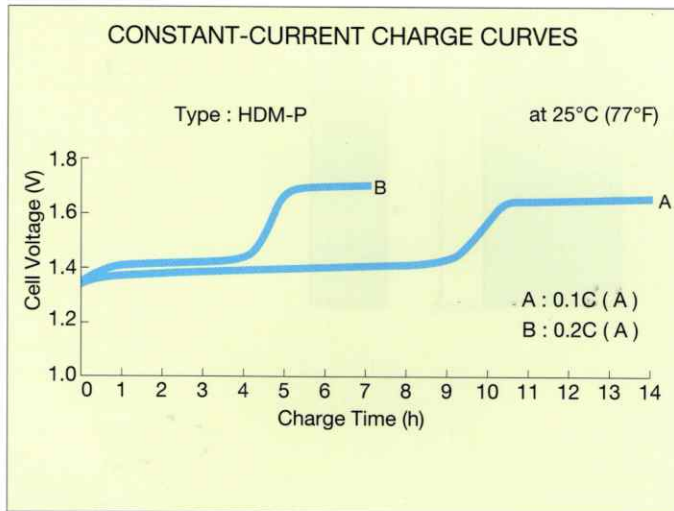
MEDIUM-RATE TYPE HDM-P

Dimensional Data (Plastic Container)

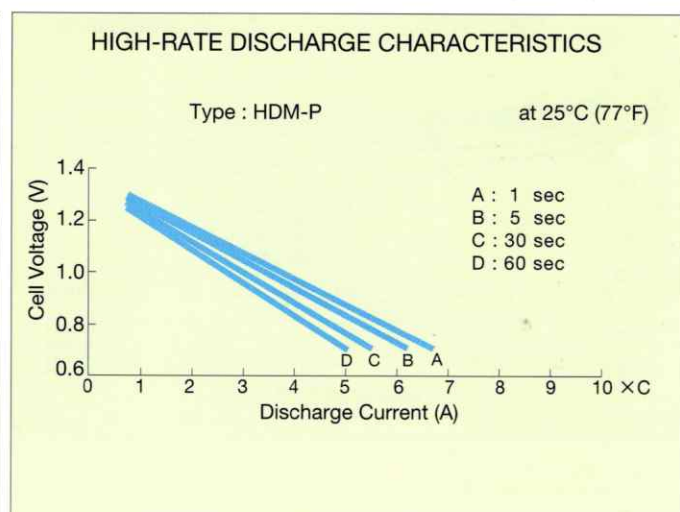
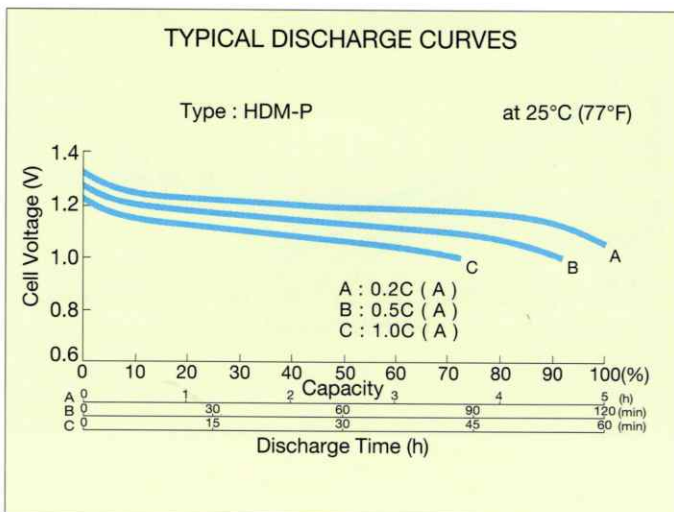
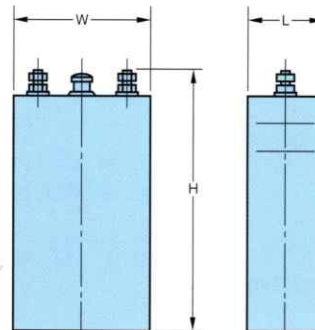
Cell type	Rated Capacity (Ah/5H.R.)	Dimensions (mm)			Approx. Weight (kg)	Approx. Electrolyte (ℓ)
		Height	Width	Length		
HDM 10P	10	160	73	60	1.1	0.2
HDM 20P	20	272	143	52	2.6	0.9
HDM 30P	30	272	143	52	2.9	0.8
HDM 40P	40	272	143	52	3.1	0.7
HDM 50P	50	272	143	52	2.9	0.5
HDM 60P	60	272	143	76	4.5	1.1
HDM 80P	80	272	143	76	5.2	1.0
HDM 100P	100	272	145	100	6.3	1.0
HDM 120P	120	370	170	120	10.0	3.3
HDM 150P	150	370	170	120	11.0	3.0
HDM 200P	200	370	170	120	12.5	2.3
HDM 250P	250	370	170	195	18.0	5.2
HDM 300P	300	370	170	195	19.5	4.7
HDM 350P	350	370	170	195	20.0	4.3
HDM 400P	400	370	170	285	28.0	8.0
HDM 450P	450	370	170	285	29.0	7.5
HDM 500P	500	370	170	285	31.5	6.4
HDM 600P	600	370	170	390	39.0	10.0
HDM 700P	700	372	170	515	50.0	15.0
HDM 800P	800	372	170	515	53.0	14.0
HDM 900P	900	372	170	515	56.0	13.0
HDM 1000P	1000	372	170	515	58.0	12.0

* The nominal capacity refers to the 5h discharge rate to an end voltage of 1.06V/cell after charging for 7 hours with 5h-rate (0.2×C amps.)

Performance Data



Plastic Container



CELL DIMENSIONS AND CELL PERFORMANCE

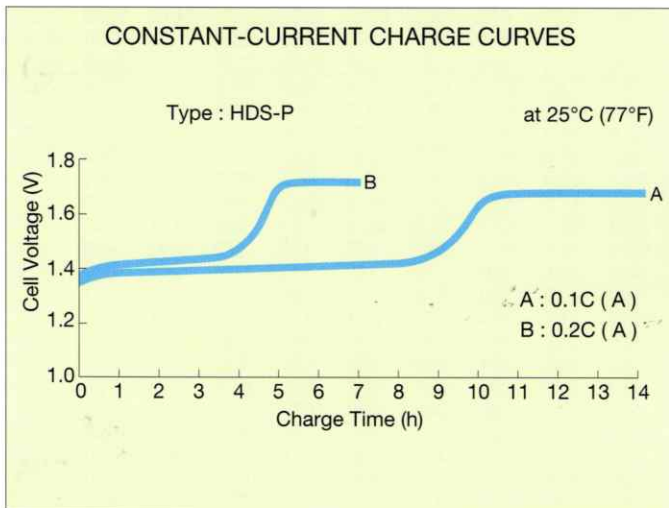
LONG-RATE TYPE HDS-P

Dimensional Data (Plastic Container)

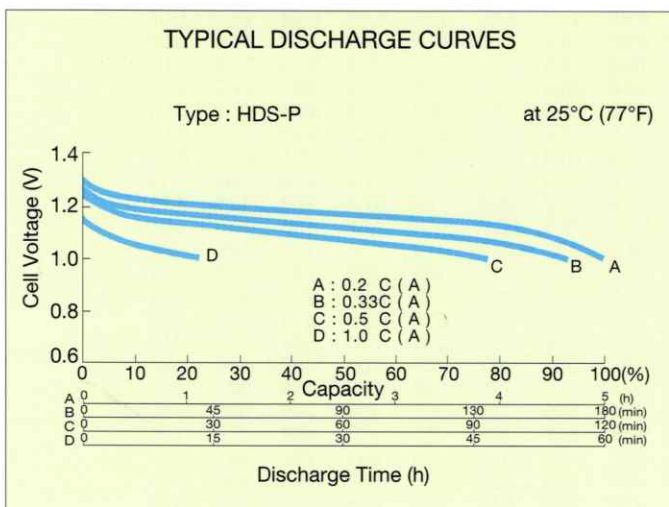
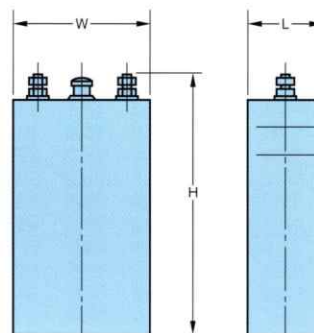
Cell type	Rated Capacity (Ah/5H.R.)	Dimensions (mm)			Approx. Weight (kg)	Approx. Electrolyte (ℓ)
		Height	Width	Length		
HDS 10P	10	183	68	43.5	0.8	0.2
HDS 20P	20	268	76.5	48.5	1.5	0.3
HDS 30P	30	272	143	52	2.8	0.9
HDS 40P	40	272	143	52	2.9	0.8
HDS 50P	50	272	143	52	3.0	0.7
HDS 60P	60	272	143	76	4.2	1.2
HDS 80P	80	272	143	76	4.5	1.1
HDS 100P	100	272	145	100	6.0	1.5
HDS 120P	120	370	170	120	9.2	3.4
HDS 150P	150	370	170	120	9.5	3.2
HDS 200P	200	370	170	120	10.5	2.8
HDS 250P	250	370	170	195	16.0	5.4
HDS 300P	300	370	170	195	18.0	5.0
HDS 350P	350	370	170	195	19.0	4.6
HDS 400P	400	370	170	195	21.5	3.8
HDS 450P	450	370	170	285	25.5	7.8
HDS 500P	500	370	170	285	27.0	7.0
HDS 600P	600	370	170	390	36.0	10.3
HDS 700P	700	370	170	390	37.5	9.5
HDS 800P	800	370	170	390	39.0	8.7
HDS 900P	900	372	170	515	48.0	13.0
HDS 1000P	1000	372	170	515	50.0	12.0

* The nominal capacity refers to the 5h discharge rate to an end voltage of 1.00V/cell after charging for 7 hours with 5h-rate (0.2×C amps.)

Performance Data



Plastic Container



AVAILABLE AMPERES AT 25°C(77°F) FULLY CHARGED

END VOLTAGE 1.14V/CELL

Cell type	C Ah	Hours							Minutes							Seconds			
		10	8	5	2	1.5	1		30	20	15	10	5	1		30	15	5	1
HDV 10P	10						8.85		15.2	18.9	21.7	24.4	29.4	38.5		43.5	45.5	55.6	62.5
HDV 20P	20						17.7		30.3	37.7	43.5	48.8	58.8	76.9		87.0	90.9	111	125
HDV 30P	30						26.5		45.5	56.6	65.2	73.2	88.2	115		130	136	167	188
HDV 40P	40						35.4		60.6	75.5	87.0	97.6	118	154		174	182	222	250
HDV 50P	50						44.2		75.8	94.3	109	122	147	192		217	227	278	313
HDV 60P	60						53.1		90.9	113	130	146	176	231		261	273	333	375
HDV 80P	80						70.8		121	151	174	195	235	308		348	364	444	500
HDV 100P	100						88.5		152	189	217	244	294	385		435	455	556	625
HDV 120P	120						106		182	226	261	293	353	462		522	545	667	750
HDV 150P	150						133		227	283	326	366	441	577		652	682	833	938
HDV 200P	200						177		303	377	435	488	588	769		870	909	1110	1250
HDV 250P	250						221		379	472	543	610	735	962		1090	1140	1390	1560
HDV 300P	300						265		455	566	652	732	882	1150		1300	1360	1670	1880
HDV 350P	350						310		530	660	761	854	1030	1350		1520	1590	1940	2190
HDV 400P	400						354		606	755	870	976	1180	1540		1740	1820	2220	2500
HDV 450P	450						398		682	849	978	1100	1320	1730		1960	2050	2500	2810
HDH 10P	10	0.99	1.24	1.96	2.70	3.57	4.35	5.81	9.09	11.6	13.5	16.1	20.0	26.3		30.3	33.3	37.0	41.7
HDH 20P	20	1.98	2.47	3.92	5.41	7.14	8.70	11.6	18.2	23.3	27.0	32.3	40.0	52.6		60.6	66.7	74.1	83.3
HDH 30P	30	2.97	3.70	5.88	8.11	10.7	13.0	17.4	27.3	34.9	40.5	48.4	60.0	78.9		90.9	100	111	125
HDH 40P	40	3.96	4.94	7.84	10.8	14.3	17.4	23.3	36.4	46.5	54.1	64.5	80.0	105		121	133	148	167
HDH 50P	50	4.95	6.17	9.80	13.5	17.9	21.7	29.1	45.5	58.1	67.6	80.6	100	132		152	167	185	208
HDH 60P	60	5.94	7.41	11.8	16.2	21.4	26.1	34.9	54.5	69.8	81.1	96.8	120	158		182	200	222	250
HDH 80P	80	7.92	9.88	15.7	21.6	28.6	34.8	46.5	72.7	93.0	108	129	160	211		242	267	296	333
HDH 100P	100	9.90	12.4	19.6	27.0	35.7	43.5	58.1	90.9	116	135	161	200	263		303	333	370	417
HDH 120P	120	11.9	14.8	23.5	32.4	42.9	52.2	69.8	109	140	162	194	240	316		364	400	444	500
HDH 150P	150	14.9	18.5	29.4	40.5	53.6	65.2	87.2	136	174	203	242	300	395		455	500	556	625
HDH 200P	200	19.8	24.7	39.2	54.1	71.4	87.0	116	182	233	270	323	400	526		606	667	741	833
HDH 250P	250	24.8	30.9	49.0	67.6	89.3	109	145	227	291	338	403	500	658		758	833	926	1040
HDH 300P	300	29.7	37.0	58.8	81.1	107	130	174	273	349	405	484	600	789		909	1000	1110	1250
HDH 350P	350	34.7	43.2	68.6	94.6	125	152	203	318	407	473	565	700	921		1060	1170	1300	1460
HDH 400P	400	39.6	49.4	78.4	108	143	174	233	364	465	541	645	800	1050		1210	1330	1480	1670
HDH 450P	450	44.6	55.6	88.2	122	161	196	262	409	523	608	726	900	1180		1360	1500	1670	1880
HDH 500P	500	49.5	61.7	98.0	135	179	217	291	455	581	676	806	1000	1320		1520	1670	1850	2080
HDH 600P	600	59.4	74.1	118	162	214	261	349	545	698	811	968	1200	1580		1820	2000	2220	2500
HDH 700P	700	69.3	86.4	137	189	250	304	407	636	814	946	1130	1400	1840		2120	2330	2590	2920
HDM 10P	10	0.96	1.19	1.85	2.56	3.28	3.85	4.83	6.67	7.87	8.70	9.62	10.8	15.9		17.9	19.2	20.8	23.3
HDM 20P	20	1.92	2.38	3.70	5.13	6.56	7.69	9.66	13.3	15.7	17.4	19.2	21.5	31.7		35.7	38.5	41.7	46.5
HDM 30P	30	2.88	3.57	5.56	7.69	9.84	11.5	14.5	20.0	23.6	26.1	28.8	32.3	47.6		53.6	57.7	62.5	69.8
HDM 40P	40	3.85	4.76	7.41	10.3	13.1	15.4	19.3	26.7	31.5	34.8	38.5	43.0	63.5		71.4	76.9	83.3	93.0
HDM 50P	50	4.81	5.95	9.26	12.8	16.4	19.2	24.2	33.3	39.4	43.5	48.1	53.8	79.4		89.3	96.2	104	116
HDM 60P	60	5.77	7.14	11.1	15.4	19.7	23.1	29.0	40.0	47.2	52.2	57.7	64.5	95.2		107	115	125	140
HDM 80P	80	7.69	9.52	14.8	20.5	26.2	30.8	38.6	53.3	63.0	69.6	76.9	86.0	127		143	154	167	186
HDM 100P	100	9.62	11.9	18.5	25.6	32.8	38.5	48.3	66.7	78.7	87.0	96.2	108	159		179	192	208	233
HDM 120P	120	11.5	14.3	22.2	30.8	39.3	46.2	58.0	80.0	94.5	104	115	129	190		214	231	250	279
HDM 150P	150	14.4	17.9	27.8	38.5	49.2	57.7	72.5	100	118	130	144	161	238		268	288	313	349
HDM 200P	200	19.2	23.8	37.0	51.3	65.6	76.9	96.6	133	157	174	192	215	317		357	385	417	465
HDM 250P	250	24.0	29.8	46.3	64.1	82.0	96.2	121	167	197	217	240	269	397		446	481	521	581
HDM 300P	300	28.8	35.7	55.6	76.9	98.4	115	145	200	236	261	288	323	476		536	577	625	698
HDM 350P	350	33.7	41.7	64.8	89.7	115	135	169	233	276	304	337	376	556		625	673	729	814
HDM 400P	400	38.5	47.6	74.1	103	131	154	193	267	315	348	385	430	635		714	769	833	930
HDM 450P	450	43.3	53.6	83.3	115	148	173	217	300	354	391	433	484	714		804	865	938	1050
HDM 500P	500	48.1	59.5	92.6	128	164	192	242	333	394	435	481	538	794		893	962	1040	1160
HDM 600P	600	57.7	71.4	111	154	197	231	290	400	472	522	577	645	952		1070	1150	1250	1400
HDM 700P	700	67.3	83.3	130	179	230	269	338	467	551	609	673	753	1110		1250	1350	1460	1630
HDM 800P	800	76.9	95.2	148	205	262	308	386	533	630	696	769	860	1270		1430	1540	1670	1860
HDM 900P	900	86.5	107	167	231	295	346	435	600	709	783	865	968	1430		1610	1730	1880	2090
HDM 1000P	1000	96.2	119	185	256	328	385	483	667	787	870	962	1080	1590		1790	1920	2080	2330
HDS 10P	10	0.91	1.11	1.67	2.22	2.70	3.08	3.57	4.48	5.10	5.49	5.95	6.76	9.09		10.4	11.1		
HDS 20P	20	1.82	2.22	3.33	4.44	5.41	6.15	7.14	8.97	10.2	11.0	11.9	13.5	18.2		20.8	22.2		
HDS 30P	30	2.73	3.33	5.00	6.67	8.11	9.23	10.7	13.5	15.3	16.5	17.9	20.3	27.3		31.3	33.3		
HDS 40P	40	3.64	4.44	6.67	8.89	10.8	12.3	14.3	17.9	20.4	22.0	23.8	27.0	36.4		41.7	44.4		
HDS 50P	50	4.55	5.56	8.33	11.1	13.5	15.4	17.9	22.4	25.5	27.5	29.8	33.8	45.5		52.1	55.6		
HDS 60P	60	5.45	6.67	10.0	13.3	16.2	18.5	21.4	26.9	30.6	33.0	35.7	40.5	54.5		62.5	66.7		
HDS 80P	80	7.27	8.89	13.3	17.8	21.6	24.6	28.6	35.9	40.8	44.0	47.6	54.1	72.7		83.3	88.9		
HDS 100P	100	9.09	11.1	16.7	22.2	27.0	30.8	35.7	44.8	51.0	54.9	59.5	67.6	90.9		104	111		
HDS 120P	120	10.9	13.3	20.0	26.7	32.4	36.9	42.9	53.8	61.2	65.9	71.4	81.1	109		125	133		
HDS 150P	150	13.6	16.7	25.0	33.3	40.5	46.2	53.6	67.3	76.5	82.4	89.3	101	136		156	167		
HDS 200P	200	18.2	22.2	33.3	44.4	54.1	61.5	71.4	89.7	102	110	119	135	182		208	222		
HDS 250P	250	22.7	27.8	41.7	55.6	67.6	76.9	89.3	112	128	137	149	169	227		260	278		
HDS 300P	300	27.3	33.3	50.0	66.7	81.1	92.3	107	135	153	165	179	203	273		313	333		
HDS 350P	350	31.8	38.9	58.3	77.8	94.6	108	125	157	179	192	208	236	318		365	389		
HDS 400P	400	36.4	44.4	66.7	88.9	108	123	143	179	204	220	238	270	364		417	444		

AVAILABLE AMPERES AT 25°C(77°F) FULLY CHARGED

END VOLTAGE 1.10V/CELL

Cell type	C Ah	Hours							Minutes					Seconds				
		10	8	5	3	2	1.5	1	30	20	15	10	5	1	30	15	5	1
HDV 10P	10							9.26	16.1	20.8	25.0	31.3	38.5	52.6	55.6	58.1	58.8	76.9
HDV 20P	20							18.5	32.3	41.7	50.0	62.5	76.9	105	111	116	118	154
HDV 30P	30							27.8	48.4	62.5	75.0	93.8	115	158	167	174	176	231
HDV 40P	40							37.0	64.5	83.3	100	125	154	211	222	233	235	308
HDV 50P	50							46.3	80.7	104	125	156	192	263	278	291	294	385
HDV 60P	60							55.6	96.8	125	150	188	231	316	333	349	353	462
HDV 80P	80							74.1	129	167	200	250	308	421	444	465	471	615
HDV 100P	100							92.6	161	208	250	313	385	526	556	581	588	769
HDV 120P	120							111	194	250	300	375	462	632	667	698	706	723
HDV 150P	150							139	242	313	375	469	577	789	833	872	882	1150
HDV 200P	200							185	323	417	500	625	769	1050	1110	1160	1170	1530
HDV 250P	250							231	403	521	625	781	962	1310	1380	1450	1470	1920
HDV 300P	300							278	484	625	750	938	1150	1570	1660	1740	1760	2300
HDV 350P	350							324	565	729	875	1090	1340	1840	1940	2030	2050	2690
HDV 400P	400							370	645	833	1000	1250	1530	2100	2220	2320	2350	3070
HDV 450P	450							417	726	938	1120	1400	1730	2360	2500	2610	2640	3460
HDH 10P	10	1.01	1.26	2.00	2.94	4.07	5.08	6.94	11.8	14.7	16.7	19.6	23.3	31.3	24.5	37.0	41.7	50.0
HDH 20P	20	2.02	2.51	4.00	5.88	8.13	10.2	13.9	23.5	29.4	33.3	39.2	46.5	62.5	69.0	74.1	83.3	100
HDH 30P	30	3.03	3.77	6.00	8.82	12.2	15.2	20.8	35.3	44.1	50.0	58.8	69.8	93.8	103	111	125	150
HDH 40P	40	4.04	5.03	8.00	11.8	16.3	20.3	27.8	47.1	58.8	66.7	78.4	93.8	125	138	148	167	200
HDH 50P	50	5.05	6.28	10.0	14.7	20.3	25.4	34.7	58.8	73.5	83.3	98.0	116	156	172	185	208	250
HDH 60P	60	6.06	7.54	12.0	17.7	24.4	30.5	41.7	70.6	88.2	100	118	140	188	207	222	250	300
HDH 80P	80	8.08	10.1	16.0	23.5	32.5	40.6	55.6	94.1	118	133	157	186	250	276	296	333	400
HDH 100P	100	10.1	12.6	20.0	29.4	40.7	50.8	69.4	118	147	167	196	233	313	345	370	417	500
HDH 120P	120	12.1	15.1	24.0	35.3	48.8	60.9	83.3	141	176	200	235	279	375	414	444	500	600
HDH 150P	150	15.2	18.8	30.0	44.1	61.0	76.1	104	176	221	250	294	349	469	517	556	625	750
HDH 200P	200	20.2	25.1	40.0	58.8	81.3	102	139	235	294	333	392	465	625	690	741	833	1000
HDH 250P	250	25.3	31.4	50.0	73.5	102	127	174	294	368	417	481	543	658	714	781	850	1050
HDH 300P	300	30.3	37.7	60.0	88.2	122	152	208	353	441	500	577	652	789	857	938	1000	1150
HDH 350P	350	35.4	44.0	70.0	103	142	178	243	412	515	583	673	761	921	1000	1090	1167	1340
HDH 400P	400	40.4	50.3	80.0	118	163	203	278	471	588	667	769	870	1050	1140	1250	1330	1530
HDH 450P	450	45.5	56.5	90.0	132	183	228	313	529	662	750	865	978	1180	1280	1400	1500	1730
HDH 500P	500	50.5	62.8	100	147	203	254	347	588	735	833	962	1080	1320	1420	1560	1660	1920
HDH 600P	600	60.6	75.4	120	176	244	305	417	706	882	1000	1150	1300	1570	1710	1870	2000	2300
HDH 700P	700	70.7	87.9	140	206	285	355	486	824	1020	1160	1340	1520	1840	2000	2180	2330	2690
HDM 10P	10	0.97	1.20	1.89	2.82	3.76	4.55	5.92	8.47	9.90	10.8	11.7	12.5	14.7	15.6	16.3	17.8	27.7
HDM 20P	20	1.94	2.41	3.77	5.63	7.52	9.09	11.8	17.0	19.8	21.5	23.5	25.0	29.4	31.3	32.8	35.7	55.6
HDM 30P	30	2.91	3.61	5.66	8.45	11.3	13.6	17.8	25.4	29.7	32.3	35.3	37.5	44.1	46.9	49.2	53.6	83.3
HDM 40P	40	3.88	4.82	7.55	11.3	15.0	18.2	23.7	33.9	39.6	43.0	47.0	50.0	58.8	62.5	65.6	71.4	111
HDM 50P	50	4.85	6.02	9.43	14.1	18.8	22.7	29.6	42.4	49.5	53.8	58.8	62.5	73.5	78.1	82.0	89.3	139
HDM 60P	60	5.83	7.23	11.3	16.9	22.6	27.3	35.5	50.9	59.4	64.5	70.6	75.0	88.2	93.8	98.4	107	167
HDM 80P	80	7.77	9.64	15.1	22.5	30.1	36.4	47.0	67.8	79.2	86.0	94.1	100	118	125	131	143	222
HDM 100P	100	9.71	12.1	18.9	28.2	37.6	45.5	59.2	84.8	99.0	108	118	125	147	156	164	179	278
HDM 120P	120	11.7	14.5	22.6	33.8	45.1	54.6	71.0	102	119	129	141	150	176	188	197	214	333
HDM 150P	150	14.6	18.1	28.3	42.3	56.4	68.2	88.8	127	149	161	176	188	221	234	246	268	417
HDM 200P	200	19.4	24.1	37.7	56.3	75.2	90.9	118	169	198	215	235	250	294	313	328	357	556
HDM 250P	250	24.3	30.1	47.2	70.4	94.0	114	148	212	248	269	294	313	368	391	410	446	694
HDM 300P	300	29.1	36.1	56.6	84.5	113	136	178	254	297	323	353	375	441	469	492	536	833
HDM 350P	350	34.0	42.2	66.0	98.6	132	159	207	297	347	376	412	438	515	547	572	625	972
HDM 400P	400	38.8	48.2	75.5	113	150	182	237	339	396	430	471	500	588	625	656	714	1110
HDM 450P	450	43.7	54.2	85.9	127	169	205	266	381	446	484	529	563	662	703	738	804	1250
HDM 500P	500	48.5	60.2	94.3	141	188	227	296	424	495	538	588	625	735	781	820	893	1380
HDM 600P	600	58.3	72.3	113	169	226	273	355	508	594	645	706	750	882	938	984	1070	1660
HDM 700P	700	68.0	84.3	132	197	263	318	414	593	693	753	824	875	1020	1090	1140	1250	1940
HDM 800P	800	77.7	96.4	151	225	301	364	473	678	792	860	941	1000	1170	1250	1310	1420	2220
HDM 900P	900	87.4	108	170	254	338	409	533	763	891	968	1050	1120	1320	1400	1470	1600	2500
HDM 1000P	1000	97.1	120	189	282	376	455	592	847	990	1080	1170	1250	1470	1560	1630	1780	2770
HDS 10P	10	0.94	1.15	1.75	2.38	2.99	3.50	4.33	5.75	6.37	6.67	7.14	7.75	9.35	9.90	10.4		
HDS 20P	20	1.87	2.30	3.51	4.76	5.99	6.99	8.66	11.5	12.7	13.6	14.7	16.8	21.3	23.5	25.3		
HDS 30P	30	2.80	3.45	5.26	7.14	8.98	10.5	13.0	17.2	19.1	20.4	22.1	25.2	31.9	35.3	38.0		
HDS 40P	40	3.74	4.60	7.02	9.52	12.0	14.0	17.3	23.0	25.5	27.2	29.4	33.6	42.6	47.1	50.6		
HDS 50P	50	4.67	5.75	8.77	11.9	15.0	17.5	21.7	28.7	31.9	34.0	36.8	42.0	53.2	58.8	63.3		
HDS 60P	60	5.61	6.90	10.5	14.3	18.0	21.0	26.0	34.5	38.2	40.8	44.1	50.4	63.8	70.6	76.0		
HDS 80P	80	7.48	9.20	14.0	19.1	24.0	28.0	34.6	46.0	51.0	54.4	58.8	67.2	85.1	94.1	101		
HDS 100P	100	9.35	11.5	17.5	23.8	29.9	35.0	43.3	57.5	63.7	68.0	73.5	84.0	106	118	127		
HDS 120P	120	11.2	13.8	21.1	28.6	35.9	42.0	52.0	69.0	76.4	81.6	88.2	101	128	141	152		
HDS 150P	150	14.0	17.2	26.3	35.7	44.9	52.5	64.9	86.2	95.5	102	110	126	160	176	190		
HDS 200P	200	18.7	23.0	35.1	47.6	59.9	69.9	86.6	115	127	136	147	168	213	235	253		
HDS 250P	250	23.4	28.7	43.9	59.5	74.9	87.4	108	144	159	167	179	194	234	248	260		
HDS 300P	300	28.0	34.5	52.6	71.4	89.8	105	130	172	191	200	214	233	280	297	313		
HDS 350P	350	32.7	40.2	61.4	83.3	105	122	152	201	223	233	250	271	327	347	365		
HDS 400P	400	37.4	46.0	70.2	95.2	120	140	173	230	255	267	286	310	374	396	417		
HDS 450P	450	42.1	51.7	79.0	107	135	157	195	259	287	300	321	349	421	446	469		
HDS 500P	500	46.7	57.5	87.7	119	150	175	216	287	318	333	357	388	467	495	521		
HDS 600P																		

AVAILABLE AMPERES AT 25°C(77°F) FULLY CHARGED

END VOLTAGE 1.06V/CELL

Cell type	C Ah	Hours							Minutes							Seconds			
		10	8	5	3	2	1.5	1	30	20	15	10	5	1	30	15	5	1	
HDV 10P	10								9.62	17.5	23.8	29.4	37.0	45.5	58.8	66.7	69.0	71.4	89.3
HDV 20P	20								19.2	35.1	47.6	58.8	74.1	90.9	118	133	138	143	179
HDV 30P	30								28.9	52.6	71.4	88.2	111	136	176	200	207	214	268
HDV 40P	40								38.5	70.2	95.2	118	148	182	235	267	276	286	357
HDV 50P	50								48.1	87.7	119	147	185	227	294	333	345	357	446
HDV 60P	60								57.7	105	143	176	222	273	353	400	414	429	536
HDV 80P	80								76.9	140	190	235	296	364	471	533	552	571	714
HDV 100P	100								96.2	175	238	294	370	455	588	667	690	714	893
HDV 120P	120								115	211	286	353	444	545	706	800	828	857	1070
HDV 150P	150								144	263	357	441	556	682	882	1000	1030	1070	1330
HDV 200P	200								192	351	476	588	741	909	1170	1330	1380	1420	1780
HDV 250P	250								240	439	595	735	926	1130	1470	1660	1720	1780	2230
HDV 300P	300								288	526	714	882	1110	1360	1760	2000	2070	2140	2670
HDV 350P	350								337	614	833	1020	1290	1590	2050	2330	2410	2500	3120
HDV 400P	400								385	702	952	1170	1480	1810	2350	2660	2760	2850	3570
HDV 450P	450								433	789	1070	1320	1660	2040	2640	3000	3100	3210	4010
HDH 10P	10	1.02	1.26	2.01	3.17	4.37	5.56	7.75	13.7	17.9	20.8	25.0	29.4	38.5	41.7	45.5	50.5	58.8	
HDH 20P	20	2.03	2.53	4.02	6.35	8.73	11.1	15.5	27.4	35.7	41.7	50.0	58.8	76.9	83.3	90.9	100	118	
HDH 30P	30	3.05	3.79	6.03	9.52	13.1	16.7	23.3	41.1	53.6	62.5	75.0	88.2	115	125	136	150	176	
HDH 40P	40	4.06	5.05	8.04	12.7	17.5	22.2	31.0	54.8	71.4	83.3	100	118	154	167	182	200	235	
HDH 50P	50	5.08	6.31	10.1	15.9	21.8	27.8	38.8	68.5	89.3	104	125	147	192	208	227	250	294	
HDH 60P	60	6.09	7.58	12.1	19.0	26.2	33.3	46.5	82.2	107	125	150	176	231	250	273	300	353	
HDH 80P	80	8.12	10.1	16.1	25.4	34.9	44.4	62.0	110	143	167	200	235	308	333	364	400	471	
HDH 100P	100	10.2	12.6	20.1	31.7	43.7	55.6	77.5	137	179	208	250	294	385	417	455	500	588	
HDH 120P	120	12.2	15.2	24.1	38.1	52.4	66.7	93.0	164	214	250	300	353	462	500	545	600	706	
HDH 150P	150	15.2	18.9	30.2	47.6	65.5	83.3	116	205	268	313	375	441	577	625	682	750	882	
HDH 200P	200	20.3	25.2	40.2	63.5	87.3	111	155	274	357	417	500	588	769	833	909	1000	1170	
HDH 250P	250	25.4	31.6	50.3	79.4	109	139	194	342	446	521	581	676	833	893	962	1040	1190	
HDH 300P	300	30.5	37.9	60.3	95.2	131	167	233	411	536	625	698	811	1000	1070	1150	1250	1420	
HDH 350P	350	35.5	44.2	70.4	111	153	194	271	479	625	729	814	946	1160	1250	1340	1450	1660	
HDH 400P	400	40.6	50.5	80.4	127	175	222	310	548	714	833	930	1080	1330	1420	1530	1660	1900	
HDH 450P	450	45.7	56.8	90.5	143	197	250	349	616	804	938	1040	1210	1500	1600	1730	1870	2140	
HDH 500P	500	50.8	63.1	101	159	218	278	388	685	893	1040	1160	1350	1660	1780	1920	2080	2380	
HDH 600P	600	60.9	75.8	121	190	262	333	465	822	1070	1250	1390	1620	2000	2140	2300	2500	2850	
HDH 700P	700	71.1	88.4	141	222	306	389	543	959	1250	1450	1620	1890	2330	2500	2690	2910	3330	
HDM 10P	10	1.01	1.26	2.00	3.13	4.26	5.29	6.90	10.0	11.6	12.8	14.2	15.6	18.5	19.6	21.2	22.7	31.2	
HDM 20P	20	2.02	2.51	4.00	6.25	8.51	10.6	13.8	20.0	23.3	25.6	28.6	31.3	37.0	39.2	42.6	45.5	62.5	
HDM 30P	30	3.03	3.77	6.00	9.38	12.8	15.9	20.7	30.0	34.9	38.5	42.9	46.9	55.6	58.8	63.8	68.2	93.8	
HDM 40P	40	4.04	5.03	8.00	12.5	17.0	21.2	27.6	40.0	46.5	51.3	57.1	62.5	74.1	78.4	85.1	90.9	125	
HDM 50P	50	5.05	6.28	10.0	15.6	21.3	26.5	34.5	50.0	58.1	64.1	71.4	78.1	92.6	98.0	106	114	156	
HDM 60P	60	6.06	7.54	12.0	18.8	25.5	31.8	41.4	60.0	70.0	76.9	85.7	93.8	111	118	128	136	188	
HDM 80P	80	8.08	10.1	16.0	25.0	34.0	42.3	55.2	80.0	93.0	103	114	125	148	157	170	182	250	
HDM 100P	100	10.1	12.6	20.0	31.3	42.6	52.9	69.0	100	116	128	143	156	185	196	213	227	313	
HDM 120P	120	12.1	15.1	24.0	37.5	51.1	63.5	82.8	120	140	154	171	188	222	235	255	273	375	
HDM 150P	150	15.2	18.8	30.0	46.9	63.8	79.4	103	150	174	192	214	234	278	294	319	341	469	
HDM 200P	200	20.2	25.1	40.0	62.5	85.1	106	138	200	233	256	286	313	370	392	426	455	625	
HDM 250P	250	25.3	31.4	50.0	78.1	106	132	172	250	291	321	357	391	463	490	532	568	781	
HDM 300P	300	30.3	37.7	60.0	93.8	128	159	207	300	349	385	429	469	556	588	638	682	938	
HDM 350P	350	35.4	44.0	70.0	109	149	185	241	350	407	449	500	547	648	686	745	795	1090	
HDM 400P	400	40.4	50.3	80.0	125	170	212	276	400	465	513	571	625	741	784	851	909	1250	
HDM 450P	450	45.5	56.5	90.0	141	191	238	310	450	523	577	643	703	833	882	957	1020	1400	
HDM 500P	500	50.5	62.8	100	156	213	265	345	500	581	641	714	781	926	980	1060	1130	1560	
HDM 600P	600	60.6	75.4	120	188	255	317	414	600	698	769	857	938	1110	1170	1270	1360	1870	
HDM 700P	700	70.7	87.9	140	219	298	370	483	700	814	897	1000	1090	1290	1370	1480	1590	2180	
HDM 800P	800	80.8	101	160	250	340	423	552	800	934	1020	1140	1250	1480	1560	1700	1810	2500	
HDM 900P	900	90.9	113	180	281	383	476	621	900	1040	1150	1280	1400	1660	1760	1910	2040	2810	
HDM 1000P	1000	101	126	200	313	426	529	690	1000	1160	1280	1420	1560	1850	1960	2120	2270	3120	
HDS 10P	10	0.97	1.20	1.89	2.70	3.50	4.15	5.15	6.67	7.58	8.06	8.55	9.35	11.1	11.7	12.1			
HDS 20P	20	1.94	2.41	3.77	5.41	6.99	8.30	10.3	13.3	15.2	16.1	17.4	20.2	26.0	28.2	30.3			
HDS 30P	30	2.91	3.61	5.66	8.11	10.5	12.5	15.5	20.0	22.7	24.2	26.1	30.3	39.0	42.3	45.5			
HDS 40P	40	3.88	4.82	7.55	10.8	14.0	16.6	20.6	26.7	30.3	32.3	34.8	40.4	52.0	56.3	60.6			
HDS 50P	50	4.85	6.02	9.43	13.5	17.5	20.8	25.8	33.3	37.9	40.3	43.5	50.5	64.9	70.4	75.8			
HDS 60P	60	5.83	7.23	11.3	16.2	21.0	2												

AVAILABLE AMPERES AT 25°C(77°F) FULLY CHARGED

END VOLTAGE 1.00V/CELL

Cell type	C Ah	Hours							Minutes							Seconds			
		10	8	5	3	2	1.5	1	30	20	15	10	5	1	30	15	5	1	
HDV 10P	10							10.2	18.9	26.3	33.3	43.5	55.6	76.9	83.3	87.7	90.9	107	
HDV 20P	20								20.4	37.7	52.6	66.7	87.0	111	154	167	175	182	215
HDV 30P	30								30.6	56.6	79.0	100	130	167	231	250	263	273	323
HDV 40P	40								40.8	75.5	105	133	174	222	308	333	351	364	430
HDV 50P	50								51.8	94.3	132	167	217	278	385	417	439	455	538
HDV 60P	60								61.2	113	158	200	261	333	462	500	526	545	645
HDV 80P	80								81.6	151	211	267	348	444	615	667	702	727	860
HDV 100P	100								102	189	263	333	435	556	769	833	877	909	1070
HDV 120P	120								122	226	316	400	522	667	923	1000	1050	1090	1290
HDV 150P	150								153	283	395	500	652	833	1150	1250	1310	1360	1610
HDV 200P	200							204	377	526	667	870	1110	1530	1660	1750	1810	2150	
HDV 250P	250							255	472	658	833	1080	1380	1920	2080	2190	2270	2680	
HDV 300P	300							306	566	789	1000	1300	1660	2300	2500	2630	2720	3220	
HDV 350P	350							357	660	921	1160	1520	1940	2690	2910	3070	3180	3760	
HDV 400P	400							408	755	1050	1330	1730	2220	3070	3330	3500	3630	4300	
HDV 450P	450							459	849	1180	1500	1950	2500	3460	3750	3940	4090	4830	
HDH 10P	10	1.02	1.27	2.02	3.39	4.73	6.17	8.93	16.1	21.3	24.4	27.8	33.3	45.5	50.0	58.8	61.5	71.6	
HDH 20P	20	2.04	2.54	4.04	6.78	9.43	12.4	17.9	32.3	42.6	48.8	55.6	66.7	90.9	100	118	125	143	
HDH 30P	30	3.06	3.81	6.06	10.2	14.2	18.5	26.8	48.3	63.8	73.2	83.3	100	136	150	176	188	214	
HDH 40P	40	4.08	5.08	8.08	13.6	18.9	24.7	35.7	64.5	85.1	97.6	111	133	182	200	235	250	286	
HDH 50P	50	5.10	6.34	10.1	16.9	23.6	30.9	44.6	80.7	106	122	139	167	227	250	294	313	357	
HDH 60P	60	6.12	7.61	12.1	20.3	28.3	37.0	53.6	96.8	128	146	167	200	273	300	353	375	429	
HDH 80P	80	8.16	10.2	16.2	27.1	37.7	49.4	71.4	129	170	195	222	267	364	400	471	500	571	
HDH 100P	100	10.2	12.7	20.2	33.9	47.2	61.7	89.3	161	213	244	278	333	455	500	588	625	714	
HDH 120P	120	12.2	15.2	24.2	40.7	56.6	74.1	107	194	255	293	333	400	545	600	706	750	857	
HDH 150P	150	15.3	19.0	30.3	50.8	70.8	92.6	134	242	319	366	417	500	682	750	882	938	1070	
HDH 200P	200	20.4	25.4	40.4	67.8	94.3	123	179	323	426	488	556	667	909	1000	1180	1250	1420	
HDH 250P	250	25.5	31.7	50.5	84.7	118	154	223	403	532	610	694	806	1000	1080	1190	1300	1450	
HDH 300P	300	30.6	38.1	60.6	102	142	185	268	484	638	732	833	968	1200	1300	1420	1500	1660	
HDH 350P	350	35.7	44.4	70.7	119	165	216	313	565	745	854	972	1120	1400	1520	1660	1750	1940	
HDH 400P	400	40.8	50.8	80.8	136	189	247	357	645	851	976	1110	1290	1600	1730	1900	2000	2220	
HDH 450P	450	45.9	57.1	90.9	153	212	278	402	726	957	1090	1250	1450	1800	1950	2140	2250	2500	
HDH 500P	500	51.0	63.4	101	169	236	309	446	806	1060	1210	1380	1610	2000	2170	2380	2500	2770	
HDH 600P	600	61.2	76.1	121	204	283	370	536	968	1270	1460	1660	1930	2400	2600	2850	3000	3330	
HDH 700P	700	71.4	88.8	141	237	330	432	625	1120	1480	1700	1940	2250	2800	3040	3330	3500	3880	
HDM 10P	10	1.02	1.26	2.01	3.33	4.85	6.17	8.20	12.0	13.8	15.1	16.6	18.1	21.7	23.8	25.0	27.7	37.0	
HDM 20P	20	2.03	2.53	4.02	6.67	9.71	12.4	16.4	24.1	27.8	30.3	33.3	36.4	43.5	47.6	50.0	55.6	74.1	
HDM 30P	30	3.05	3.79	6.03	10.0	14.6	18.5	24.6	36.1	41.0	45.5	50.0	54.6	65.2	71.4	75.0	83.3	111	
HDM 40P	40	4.06	5.05	8.04	13.3	19.4	24.7	32.8	48.2	55.0	60.6	66.7	72.7	87.0	95.2	100	111	148	
HDM 50P	50	5.08	6.31	10.1	16.7	24.3	30.9	41.0	60.2	69.4	75.8	83.3	90.9	109	119	125	139	185	
HDM 60P	60	6.09	7.58	12.1	20.0	29.1	37.0	49.2	72.3	83.3	90.9	100	109	130	143	150	167	222	
HDM 80P	80	8.12	10.1	16.1	26.7	38.8	49.4	65.6	96.4	111	121	133	145	174	190	200	222	296	
HDM 100P	100	10.2	12.6	20.1	33.3	48.5	61.7	82.0	120	139	152	167	182	217	238	250	278	370	
HDM 120P	120	12.2	15.2	24.1	40.0	58.3	74.1	98.4	145	167	182	200	218	261	286	300	333	444	
HDM 150P	150	15.2	18.9	30.2	50.0	72.8	92.6	123	181	208	227	250	273	326	357	375	417	556	
HDM 200P	200	20.3	25.3	40.2	66.7	97.1	123	164	241	278	303	333	364	435	476	500	556	741	
HDM 250P	250	25.4	31.6	50.3	80.3	121	154	205	301	347	379	417	455	543	595	625	694	926	
HDM 300P	300	30.5	37.9	60.3	100	146	185	246	361	417	455	500	545	652	714	750	833	1110	
HDM 350P	350	35.5	44.2	70.4	117	170	216	287	422	486	530	583	636	761	833	875	972	1290	
HDM 400P	400	40.6	50.5	80.4	133	194	247	328	482	556	606	667	727	870	952	1000	1110	1480	
HDM 450P	450	45.7	56.8	90.5	150	218	278	369	542	625	682	750	818	978	1070	1120	1250	1660	
HDM 500P	500	50.8	63.1	101	167	243	309	410	602	694	758	833	909	1080	1190	1250	1380	1850	
HDM 600P	600	60.9	75.8	121	200	291	370	492	723	833	909	1000	1090	1300	1420	1500	1660	2220	
HDM 700P	700	71.1	88.4	141	233	340	432	574	843	972	1060	1160	1270	1520	1660	1750	1940	2590	
HDM 800P	800	81.1	101	161	267	388	494	656	964	1110	1210	1330	1450	1730	1900	2000	2220	2960	
HDM 900P	900	91.4	114	181	300	437	556	738	1080	1250	1360	1500	1630	1950	2140	2250	2500	3330	
HDM 1000P	1000	102	126	201	333	485	617	820	1200	1380	1510	1660	1810	2170	2380	2500	2770	3700	
HDS 10P	10	1.01	1.26	2.00	3.13	4.26	5.08	6.25	8.20	9.01	9.71	10.5	11.6	13.7	14.3	15.2			
HDS 20P	20	2.02	2.51	4.00	6.25	8.51	10.2	12.5	16.4	18.0	19.4	21.3	24.7	32.3	35.1	37.0			
HDS 30P	30	3.03	3.77	6.00	9.38	12.8	15.2	18.8	24.6	27.0	29.1	31.9	37.0	48.4	52.6	55.6			
HDS 40P	40	4.04	5.03	8.00	12.5	17.0	20.3	25.0	32.8	36.0	38.8	<							

CHARGING

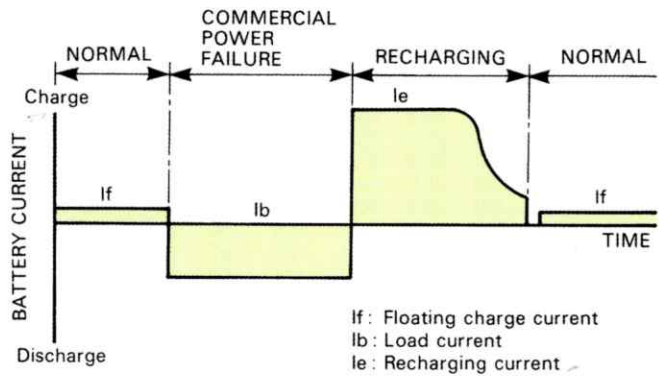
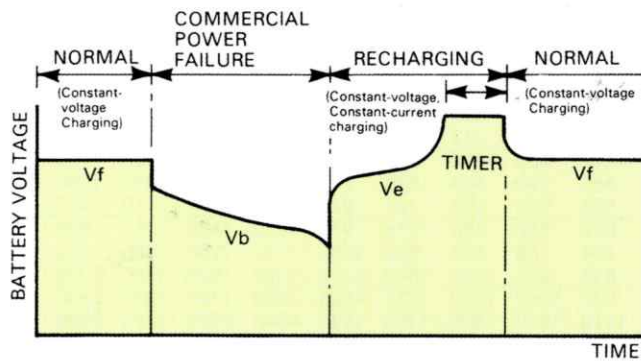
Batteries are used most commonly in parallel connection with chargers to form an uninterruptible power supply system. Generally they are charged at a constant voltage. Their normal ambient temperature is 25°C.

The following per-cell charge voltages are recommended:

OPERATING CONDITION	CELL TYPE	CHARGING VOLTAGE (V/Cell)	
		Floating Charge	Equalizing Charge
When Used Continuously in Combination with Charger: The battery is used connected in parallel to a rectifier/charger, receiving power supply from AC mains during normal operation. In emergency such as AC power failure, the battery supplies power for emergency lighting, starting of a stationary engine, non-utility generator, and other similar purposes.	HDV	1.40 ± 0.01	1.55
	HDH	1.42 ± 0.01	1.60
	HDM	1.43 ± 0.01	1.63
	HDS	1.44 ± 0.01	1.65
Charging before putting into service. (Initial Charging) The charging time should be adjusted according to the level of the charging current from the charger shown in the following as example, 20 hours at constant current $0.1 \times C$ (Amp.) 10 hours at constant current $0.2 \times C$ (Amp.) C : The nominal capacity of the battery in ampere hours.			

Note : When the charging voltages given above are too high for the load, they may be reduced by adjusting output voltages of the charger by means of its voltage drop diodes.

TYPICAL AUTOMATIC CHARGING MODE



OVERALL DIMENSIONS OF BATTERIES ON RACKS

Plastic Container

Cell type				Steel Rack																		
				20 cells						40 cells						86 cells						
				External Dimensions (approx. mm)				Weight (approx) kg	Figure	External Dimensions (approx. mm)				Weight (approx) kg	Figure	External Dimensions (approx. mm)				Weight (approx) kg	Figure	
H	H ₁	W	L	H	H ₁	W	L			H	H ₁	W	L									
HDV-P (Ah)	HDH-P (Ah)	HDM-P (Ah)	HDS-P (Ah)																			
			10	355	245	445	250	6	(A)	335	245	880	250	9	(A)	970	860	665	275	22	(C)	
	10	10		335	245	610	260	7	(A)	335	245	1210	260	11	(A)	950	860	910	290	26	(C)	
		20		480	320	495	250	12	(A)	480	320	980	270	17	(A)	1270	1115	740	335	40	(C)	
10 20	20 30 40	20 30 40 50	30 40 50	465	300	545	385	15	(A)	1060	900	535	385	30	(B)	1200	1040	800	535	50	(C)	
	50	60 80	60 80	465	300	770	385	17	(A)	1060	900	770	385	31	(B)	1200	1040	1150	535	60	(C)	
30 40				535	330	770	385	18	(A)	1170	970	770	385	32	(B)	1370	1170	1150	535	60	(C)	
	60 80	100	100	485	300	1020	410	31	(A)	1085	900	1020	410	60	(B)	1225	1040	1520	565	125	(C)	
50 60				535	330	1020	410	31	(A)	1175	970	1020	410	60	(B)	1375	1170	1520	565	130	(C)	
80 100	100 120 150	120 150 200	120 150 200	1330	1090	620	470	70	(B)	1330	1090	1220	470	100	(B)	1510	1270	1820	650	205	(C)	
120 150 200	200 250	250 300 350	250 300 350 400	1380	1140	870	520	85	(B)	1510	1270	1210	725	170	(C)	1510	1270	1210 +1380	725	390	(C)	
250	300 350 400	400 450 500	450 500	1415	1140	875	700	110	(B)	1415	1140	1735	700	155	(B)	1415	1140	1905 ×2	700	320	(B)	
300 350	450 500	600	600 700 800	1335	1060	875	510 ×2	140	(D)	1335	1060	1735	510 ×2	230	(D)	1335	1060	1905 ×2	510 ×2	480	(D)	
400 450	600 700	700 800 900 1000	900 1000	1335	1060	875	635 ×2	150	(D)	1335	1060	1735	635 ×2	250	(D)	1335	1060	1905 ×2	635 ×2	520	(D)	

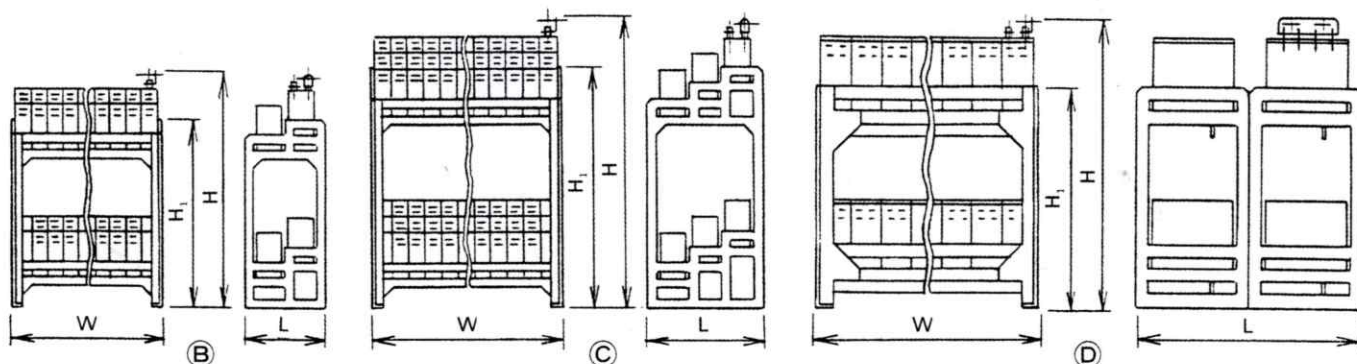
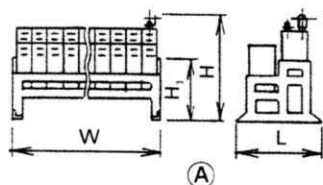
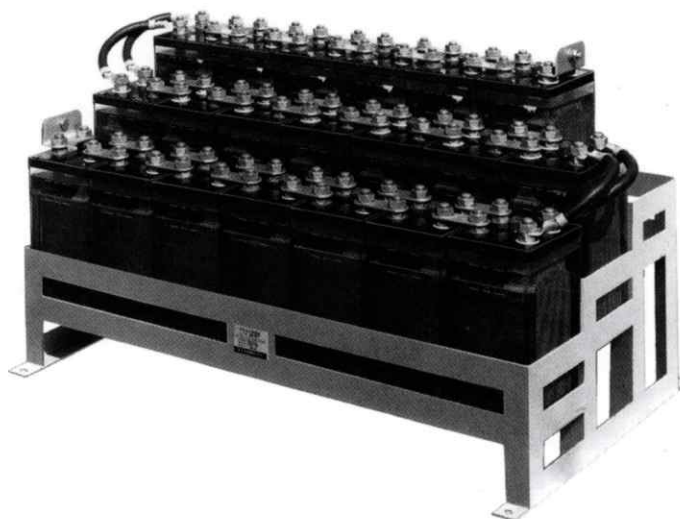
SPECIFICATION

Standard Coating : Munsell 5Y7/1
(Alkali-resistant)

Material : Steel

Notes : 1. May also be made to other specifications than the standard when so instructed.

EXTERNAL APPEARANCE (AN EXAMPLE)



WIDE APPLICATIONS



HONDA IS READY TO HELP YOU SELECT THE RIGHT TYPE

When you selecting a battery or stand-by power system, you should carefully consider various performance requirements and the conditions under which it is expected to be used. The most important four factors are the following.

1. How much current is needed?
2. How long must the battery work?
3. What is the permissible end voltage?
4. What is the minimum temperature?

Honda's experts will help you select the right type of Honda Nickel Cadmium Alkaline Battery and stand-by and other power supply systems incorporating alkaline batteries that will best meet your requirements. Write us for technical and other information concerning Honda Alkaline Batteries, uninterruptible power systems (UPS) and other stand-by DC power supply equipment or systems.

MEMO

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**PRODUCTS MANUFACTURED
AND MARKETING BY HONDA**

Pocket Type Alkaline Storage Batteries
Rectifier/Charger
Uninterruptible Power Supply Systems (UPS)
Stand-by Power Supply Systems
Solar Electric Power Systems
Related Equipments & Accessories

**PRODUCTS ADDITIONALLY
MARKETING BY HONDA**

Lead-Acid Storage Batteries
Sintered Type Alkaline Storage Batteries
Sealed Type Nickel Cadmium Storage Batteries
Other Various Types of Storage Batteries



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