

For Indian Market



# VALVE REGULATED LEAD ACID BATTERY



**HBL**<sup>®</sup>



## High Reliability VRLA Batteries for Standby Applications

The Triumph-HP series is a premium design valve regulated AGM lead acid battery designed for stationary applications. Field proven, the Triumph HP gives the user peace of mind – when the battery needs to work, it will work. Its high performance and footprint allows a smaller battery to be used than many other lead acid designs.

The Triumph HP is highly reliable and offers designed life expectancy of up to 20 years in float applications.

No watering is required – offering reducing operational costs.

The unique integral rack system of the Triumph uses the minimum of space, saving valuable real estate – and allows easy installation module by module, saving installation time and expense. The battery stacks can be mounted directly against a wall as all connections are made on the front face of the battery.

Triumph HP is UL recognized component for use in UPS systems.

To ensure safety of personnel - and the battery itself - terminal shields are supplied to ensure against accidental contact with terminals and connectors.

HBL is a public company – one of the leading battery companies in the world. We design and manufacture a wide range of batteries for critical applications – including telecommunications, aviation, railway and many other demanding applications. We pride ourselves on customer service.

## Parameter



## Operation

**Type of charging:**

Constant potential charging  
20% of the rated capacity (0.2 C10 Amp) Max

**Float Application:**

Float Voltage : 2.23VPC at 27°C  
Boost Voltage : 2.32VPC at 27°C

**Cyclic Application:**

Float Voltage : 2.27 VPC at 27°C  
Boost Voltage : 2.35 VPC at 27°C

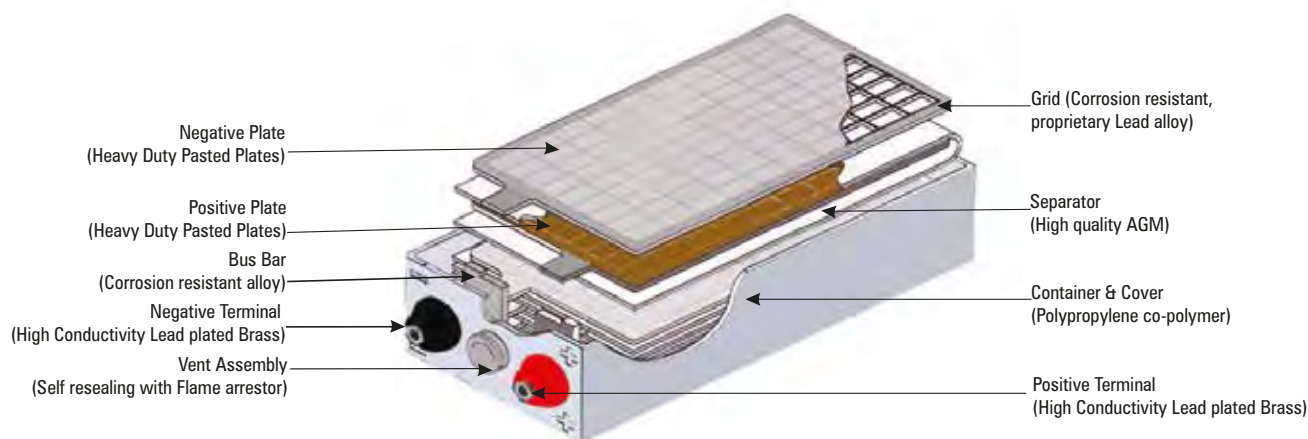
**Operating temperature range:**

-20°C to +55°C  
No watering requirements (maintenance free)

**Maximum limit for AC Ripple:**

Ripple current shall not exceed 3% RMS w.r.t battery nominal capacity.  
Ripple voltage shall not exceed 1% RMS w.r.t battery nominal voltage rating

# Design and Construction



## Key Features

UL Recognized component for UPS and other critical applications

Recombination technology using advanced AGM separator materials

Minimum footprint – saving floor space

Highest reliability

2V Cells – allowing individual cell exchange

Seismic qualification and certification available.

No water addition Industry leading post seal design leak tested with Helium detector

No special battery rooms required - no corrosive fumes

Delivered in fully charged condition

High cycling life – 2000 Cycles at 50% DOD at 27°C

Wide capacity range – 100 - 6000 Ah

ECO friendly

Low self-discharge-less than 0.5% per week

Operating range – -20°C to +55°C

AH Efficiency : >95%  
WH Efficiency : >85%

### HBL offers a complete service to our customers

Battery sizing – drawing packages – installation advice – pre-acceptance testing.

We can deliver our Triumph battery worldwide to support your project.

### Performance Conforms to:

IEC 60896-21&22:2004.

TEC/GR/TX/BAT-001/04 June 2011

IS 15549.

Maintenance and care recommendation - IEEE Std1188 - IEEE Recommended Practice for Maintenance, Testing and Replacement of Valve Regulated Lead-Acid (VRLA) Batteries for Stationary Applications.

### Design Life Expectancy

Tested as per ANSI T1.330 standard.

20 years designed life at 27°C on full float with recommended charging methods.

Designed Cycle life at 27°C

- 1200 Cycles at 80% Depth of Discharge
- 2000 Cycles at 50% Depth of Discharge
- 4000 Cycles at 20% Depth of Discharge

### Quality System

Triumph HP batteries are manufactured at HBL factories under the controls established by a quality / environmental management system that meets or exceeds the requirements of

ISO 9001:2015, ISO 14001:2015.

HBL factories are independently certified by BVCI.

### Transport Information

- Classified as Non Hazardous Cargo, meets the requirements of IMDG (International Maritime Code for Dangerous Goods).
- Meets the Requirement of special provision A67 of IATA & ICAO for Air Transport.

## Applications

01	Telecommunications Infrastructure
02	Datacentres and cloud computing
03	Switchgear
04	UPS
05	Oil and Gas
06	Solar and wind energy storage
07	Process control systems
08	Emergency lighting
09	Railway signaling and communications
10	Railways Train lighting, Air-conditioning

# PRODUCT SPECIFICATION

## HBL 2V TRIUMPH HP AGM VRLA Batteries

Model Type	Nominal Capacity (Ah) at C <sub>10</sub>	No. of basic cells per module	No. of basic modules	Discharge current in Amps				Basic Module Dimensions & Weight			
				10 Hr (1.75 ECV)	5 Hr (1.75 ECV)	3 Hr (1.75 ECV)	1 Hr (1.70 ECV)	Length (mm)	Depth * (mm)	Height (mm)	Weight (kg)
T-100 HP	100	12	1	10	17	27	62	755	381	251	103
T-150 HP	150	12	1	15	26	40	93	755	381	251	129
T-200 HP	200	12	1	20	34	53	123	755	381	303	161
T-250 HP	250	8	1	25	43	66	154	755	381	248	128
T-300 HP	300	8	1	30	52	80	185	755	381	288	154
T-350 HP	350	8	1	35	60	93	216	755	381	338	178
T-400 HP	400	4	1	40	69	106	247	755	381	209	104
T-450 HP	450	4	1	45	77	120	278	755	381	223	113
T-500 HP	500	4	1	50	86	133	309	755	381	251	129
T-550 HP	550	4	1	55	95	146	340	755	381	280	147
T-600 HP	600	4	1	60	103	160	370	755	381	280	150
T-650 HP	650	4	1	65	112	173	401	755	381	295	161
T-680 HP	680	4	1	68	117	181	420	776	640	246	213
T-760 HP	760	4	1	76	131	202	469	776	640	246	228
T-850 HP	850	4	1	85	146	226	525	776	640	246	239
T-925 HP	925	4	1	92.5	159	246	571	776	640	278	268
T-1000 HP	1000	4	1	100	172	266	617	776	640	278	280
T-1100 HP	1100	4	1	110	189	293	679	776	640	321	317
T-1200 HP	1200	4	1	120	207	319	741	776	640	321	338
T-1250 HP	1250	4	1	125	215	332	772	776	640	321	340
T-1360 HP	1360	4	1	136	234	362	840	776	640	376	367
T-1440 HP	1440	4	1	144	248	383	889	776	640	376	382
T-1500 HP	1500	4	1	150	258	399	926	776	640	376	400
T-1600 HP	1600	4	1	160	275	426	988	776	640	376	410
✧ T-1700HP	1700	4	2	170	293	452	1049	776	640	246	239
✧ T-1850 HP	1850	4	2	185	318	492	1142	776	640	278	268
✧ T-2000 HP	2000	4	2	200	344	532	1235	776	640	278	280
✧ T-2200 HP	2200	4	2	220	379	585	1358	776	640	321	317
✧ T-2350 HP	2350	4	2	235	404	625	1451	776	640	321	338
✧ T-2500 HP	2500	4	2	250	430	665	1543	776	640	321	340
✧ T-2650 HP	2650	4	2	265	456	705	1636	776	640	376	367
✧ T-2800 HP	2800	4	2	280	482	745	1728	776	640	376	382
✧ T-3000 HP	3000	4	2	300	516	798	1852	776	640	376	400
✧ T-3200 HP	3200	4	2	320	551	851	1975	776	640	376	410
✧ T-3500 HP	3500	4	3	350	602	931	2160	776	640	321	338
✧ T-4000 HP	4000	4	3	400	688	1064	2469	776	640	376	367
✧ T-4300 HP	4300	4	3	430	740	1144	2654	776	640	376	382
✧ T-4500 HP	4500	4	3	450	775	1197	2778	776	640	376	400
✧ T-5000 HP	5000	4	4	500	861	1330	3086	776	640	321	340
✧ T-5500 HP	5500	4	4	550	947	1463	3395	776	640	376	382
✧ T-5800 HP	5800	4	4	580	998	1543	3580	776	640	376	400
✧ T-6000 HP	6000	4	4	600	1033	1596	3704	776	640	376	410

### Note :-

- 1) \* Depth up to cell terminal
- 2) Dimensions specified are without bottom mounting arrangements & front covers
- 3) Dimensions given in the general arrangement drawing will supersede the dimensions mentioned in the catalogue
- 4) Single cell available up to 1600Ah capacity, dimensions and weights given are for basic module only
- 5) Number of cells per module, module dimensions & Weights are for Standard Non-Seismic racks
- 6) Nominal capacity is at a discharge rate of 10 hours to an end cell voltage of 1.75 V at 27°C
- 7) ✧ Indicates Parallel Models. Dimensions and weights given are for basic module

### Temperature Correction Factors for HBL 2V AGM VRLA Batteries

Temperature (°C)	Temperature (°F)	Correction Factor
-20	-4	2.08
-15	5	1.72
-10	14	1.49
-5	23	1.35
0	32	1.27
5	41	1.19
10	50	1.14
15	59	1.09
20	68	1.04
25	77	1.01
27	81	1.00
30	86	1.00
35	95	1.00
40	104	1.00
45	113	1.00
50	122	1.00

## Discharge characteristics in Amperes @ 27°C

Model Type	Nominal Capacity (AH) at C <sub>10</sub>	1.67 ECV					1.70 ECV				
		Discharge in Minutes					Discharge in Minutes				
		5	10	15	30	60	5	10	15	30	60
T-100 HP	100	169	139	122	87	63	164	132	116	86	62
T-150 HP	150	254	208	183	130	94	246	197	174	128	93
T-200 HP	200	339	278	244	174	126	328	263	233	171	123
T-250 HP	250	424	347	305	217	157	410	329	291	214	154
T-300 HP	300	508	417	366	261	189	492	395	349	256	185
T-350 HP	350	593	486	427	304	220	574	461	407	299	216
T-400 HP	400	678	556	488	348	252	656	526	465	342	247
T-450 HP	450	763	625	549	391	283	738	592	523	385	278
T-500 HP	500	847	694	610	435	314	820	658	581	427	309
T-550 HP	550	932	764	671	478	346	902	724	640	470	340
T-600 HP	600	1017	833	732	522	377	984	789	698	513	370
T-650 HP	650	1102	903	793	565	409	1066	855	756	556	401
T-680 HP	680	1153	944	829	591	428	1115	895	791	581	420
T-760 HP	760	1288	1056	927	661	478	1246	1000	884	650	469
T-850 HP	850	1441	1181	1037	739	535	1393	1118	988	726	525
T-925 HP	925	1568	1285	1128	804	582	1516	1217	1076	791	571
T-1000 HP	1000	1695	1389	1220	870	629	1639	1316	1163	855	617
T-1100 HP	1100	1864	1528	1341	957	692	1803	1447	1279	940	679
T-1200 HP	1200	2034	1667	1463	1043	755	1967	1579	1395	1026	741
T-1250 HP	1250	2119	1736	1524	1087	786	2049	1645	1453	1068	772
T-1360 HP	1360	2305	1889	1659	1183	855	2230	1789	1581	1162	840
T-1440 HP	1440	2441	2000	1756	1252	906	2361	1895	1674	1231	889
T-1500 HP	1500	2542	2083	1829	1304	943	2459	1974	1744	1282	926
T-1600 HP	1600	2712	2222	1951	1391	1006	2623	2105	1860	1368	988
T-1700 HP	1700	2881	2361	2073	1478	1069	2787	2237	1977	1453	1049
T-1850 HP	1850	3136	2569	2256	1609	1164	3033	2434	2151	1581	1142
T-2000 HP	2000	3390	2778	2439	1739	1258	3279	2632	2326	1709	1235
T-2200 HP	2200	3729	3056	2683	1913	1384	3607	2895	2558	1880	1358
T-2350 HP	2350	3983	3264	2866	2043	1478	3852	3092	2733	2009	1451
T-2500 HP	2500	4237	3472	3049	2174	1572	4098	3289	2907	2137	1543
T-2650 HP	2650	4492	3681	3232	2304	1667	4344	3487	3081	2265	1636
T-2800 HP	2800	4746	3889	3415	2435	1761	4590	3684	3256	2393	1728
T-3000 HP	3000	5085	4167	3659	2609	1887	4918	3947	3488	2564	1852
T-3200 HP	3200	5424	4444	3902	2783	2013	5246	4211	3721	2735	1975
T-3500 HP	3500	5932	4861	4268	3043	2201	5738	4605	4070	2991	2160
T-4000 HP	4000	6780	5556	4878	3478	2516	6557	5263	4651	3419	2469
T-4300 HP	4300	7288	5972	5244	3739	2704	7049	5658	5000	3675	2654
T-4500 HP	4500	7627	6250	5488	3913	2830	7377	5921	5233	3846	2778
T-5000 HP	5000	8475	6944	6098	4348	3145	8197	6579	5814	4274	3086
T-5500 HP	5500	9322	7639	6707	4783	3459	9016	7237	6395	4701	3395
T-5800 HP	5800	9831	8056	7073	5043	3648	9508	7632	6744	4957	3580
T-6000 HP	6000	10169	8333	7317	5217	3774	9836	7895	6977	5128	3704

# Discharge characteristics in Amperes @ 27°C

1.75 ECV																
Model Type	Nominal Capacity (Ah) at C <sub>10</sub>	Discharge in Minutes				Discharge in Hours										
		5	10	15	30	1	1.5	2	3	4	5	6	7	8	9	10
T-100 HP	100	147	118	105	79	57	44	36	27	21	17	15	13	13	11	10
T-150 HP	150	221	176	158	119	86	65	53	40	32	26	22	20	19	17	15
T-200 HP	200	294	235	211	159	114	87	71	53	42	34	30	27	25	23	21
T-250 HP	250	368	294	263	198	143	109	89	66	53	43	37	33	31	28	26
T-300 HP	300	441	353	316	238	171	130	106	80	63	52	45	40	38	34	31
T-350 HP	350	515	412	368	278	200	152	124	93	74	60	52	47	43	39	36
T-400 HP	400	588	471	421	317	229	174	142	106	84	69	60	53	50	45	41
T-450 HP	450	662	529	474	357	257	196	160	120	95	77	67	60	56	51	46
T-500 HP	500	735	588	526	397	286	217	177	133	105	86	75	67	63	56	51
T-550 HP	550	809	647	579	437	314	239	195	146	116	95	82	73	69	62	57
T-600 HP	600	882	706	632	476	343	261	213	160	126	103	90	80	75	68	62
T-650 HP	650	956	765	684	516	371	283	230	173	137	112	97	87	81	73	67
T-680 HP	680	1000	800	716	540	389	296	241	181	143	117	101	91	85	77	70
T-760 HP	760	1118	894	800	603	434	330	270	202	160	131	113	101	95	86	78
T-850 HP	850	1250	1000	895	675	486	370	301	226	179	146	127	113	106	96	88
T-925 HP	925	1360	1088	974	734	529	402	328	246	194	159	138	123	116	104	95
T-1000 HP	1000	1471	1176	1053	794	571	435	355	266	210	172	149	133	125	113	103
T-1100 HP	1100	1618	1294	1158	873	629	478	390	293	231	189	164	147	138	124	113
T-1200 HP	1200	1765	1412	1263	952	686	522	426	319	252	207	179	160	150	135	124
T-1250 HP	1250	1838	1471	1316	992	714	543	443	332	263	215	187	167	156	141	129
T-1360 HP	1360	2000	1600	1432	1079	777	591	482	362	286	234	203	181	170	153	140
T-1440 HP	1440	2118	1694	1516	1143	823	626	511	383	303	248	215	192	180	162	148
T-1500 HP	1500	2206	1765	1579	1190	857	652	532	399	315	258	224	200	188	169	154
T-1600 HP	1600	2353	1882	1684	1270	914	696	567	426	336	275	239	213	200	180	165
T-1700 HP	1700	2500	2000	1789	1349	971	739	603	452	357	293	254	227	213	192	175
T-1850 HP	1850	2721	2176	1947	1468	1057	804	656	492	389	318	276	247	231	209	191
T-2000 HP	2000	2941	2353	2105	1587	1143	870	709	532	420	344	299	267	250	225	206
T-2200 HP	2200	3235	2588	2316	1746	1257	957	780	585	462	379	328	293	275	248	227
T-2350 HP	2350	3456	2765	2474	1865	1343	1022	833	625	494	404	351	313	294	265	242
T-2500 HP	2500	3676	2941	2632	1984	1429	1087	887	665	525	430	373	333	313	282	257
T-2650 HP	2650	3897	3118	2789	2103	1514	1152	940	705	557	456	396	353	331	299	273
T-2800 HP	2800	4118	3294	2947	2222	1600	1217	993	745	588	482	418	373	350	316	288
T-3000 HP	3000	4412	3529	3158	2381	1714	1304	1064	798	630	516	448	400	375	338	309
T-3200 HP	3200	4706	3765	3368	2540	1829	1391	1135	851	672	551	478	427	400	361	330
T-3500 HP	3500	5147	4118	3684	2778	2000	1522	1241	931	735	602	522	467	438	395	360
T-4000 HP	4000	5882	4706	4211	3175	2286	1739	1418	1064	840	688	597	533	500	451	412
T-4300 HP	4300	6324	5059	4526	3413	2457	1870	1525	1144	903	740	642	573	538	485	443
T-4500 HP	4500	6618	5294	4737	3571	2571	1957	1596	1197	945	775	672	600	563	507	463
T-5000 HP	5000	7353	5882	5263	3968	2857	2174	1773	1330	1050	861	746	667	625	564	515
T-5500 HP	5500	8088	6471	5789	4365	3143	2391	1950	1463	1155	947	821	733	688	620	566
T-5800 HP	5800	8529	6824	6105	4603	3314	2522	2057	1543	1218	998	866	773	725	654	597
T-6000 HP	6000	8824	7059	6316	4762	3429	2609	2128	1596	1261	1033	896	800	750	676	618



## Discharge characteristics in Amperes for long duration discharges@ 27°C

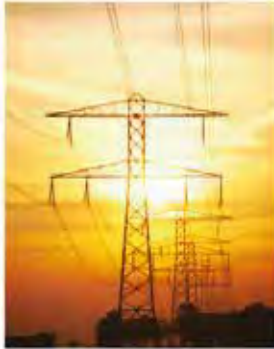
Model Type	Nominal Capacity (AH) at C <sub>10</sub>	1.75 ECV						1.80 ECV					
		Discharge in Hours						Discharge in Hours					
		20	24	48	72	100	120	20	24	48	72	100	120
T-100 HP	100	5.5	4.8	2.7	1.9	1.4	1.3	5.4	4.6	2.6	1.8	1.3	1.2
T-150 HP	150	8.3	7.2	4.1	2.8	2.1	1.9	8.0	6.9	3.9	2.7	2.0	1.8
T-200 HP	200	11.0	9.6	5.4	3.8	2.8	2.6	10.7	9.2	5.2	3.6	2.7	2.4
T-250 HP	250	13.8	12.0	6.8	4.7	3.5	3.2	13.4	11.5	6.5	4.5	3.4	3.0
T-300 HP	300	16.5	14.4	8.1	5.7	4.2	3.8	16.1	13.8	7.8	5.5	4.0	3.6
T-350 HP	350	19.3	16.8	9.5	6.6	4.9	4.5	18.8	16.0	9.1	6.4	4.7	4.3
T-400 HP	400	22.0	19.2	10.9	7.6	5.6	5.1	21.4	18.3	10.4	7.3	5.4	4.9
T-450 HP	450	24.8	21.6	12.2	8.5	6.3	5.7	24.1	20.6	11.7	8.2	6.1	5.5
T-500 HP	500	27.5	24.0	13.6	9.5	7.0	6.4	26.8	22.9	13.0	9.1	6.7	6.1
T-550 HP	550	30.3	26.4	14.9	10.4	7.7	7.0	29.5	25.2	14.3	10.0	7.4	6.7
T-600 HP	600	33.0	28.7	16.3	11.4	8.4	7.7	32.2	27.5	15.6	10.9	8.1	7.3
T-650 HP	650	35.8	31.1	17.6	12.3	9.1	8.3	34.9	29.8	16.9	11.8	8.7	7.9
T-680 HP	680	37.4	32.6	18.5	12.9	9.5	8.7	36.5	31.2	17.7	12.4	9.2	8.3
T-760 HP	760	41.8	36.4	20.6	14.4	10.6	9.7	40.8	34.8	19.8	13.8	10.2	9.2
T-850 HP	850	46.7	40.7	23.1	16.1	11.9	10.8	45.6	39.0	22.1	15.5	11.4	10.3
T-925 HP	925	50.9	44.3	25.1	17.5	12.9	11.8	49.6	42.4	24.1	16.8	12.5	11.2
T-1000 HP	1000	55.0	47.9	27.1	18.9	14.0	12.8	53.6	45.9	26.1	18.2	13.5	12.1
T-1100 HP	1100	60.5	52.7	29.9	20.8	15.4	14.0	59.0	50.4	28.7	20.0	14.8	13.4
T-1200 HP	1200	66.0	57.5	32.6	22.7	16.8	15.3	64.3	55.0	31.3	21.8	16.2	14.6
T-1250 HP	1250	68.8	59.9	33.9	23.7	17.5	15.9	67.0	57.3	32.6	22.7	16.8	15.2
T-1360 HP	1360	74.8	65.2	36.9	25.8	19.0	17.3	72.9	62.4	35.4	24.7	18.3	16.5
T-1440 HP	1440	79.2	69.0	39.1	27.3	20.2	18.4	77.2	66.0	37.5	26.2	19.4	17.5
T-1500 HP	1500	82.5	71.9	40.7	28.4	21.0	19.1	80.4	68.8	39.1	27.3	20.2	18.2
T-1600 HP	1600	88.0	76.7	43.4	30.3	22.4	20.4	85.8	73.4	41.7	29.1	21.5	19.4
T-1700 HP	1700	93.5	81.5	46.1	32.2	23.8	21.7	91.1	77.9	44.3	30.9	22.9	20.6
T-1850 HP	1850	101.8	88.6	50.2	35.0	25.9	23.6	99.2	84.8	48.2	33.7	24.9	22.5
T-2000 HP	2000	110.0	95.8	54.3	37.9	28.0	25.5	107.2	91.7	52.1	36.4	26.9	24.3
T-2200 HP	2200	121.0	105.4	59.7	41.7	30.8	28.1	118.0	100.9	57.3	40.0	29.6	26.7
T-2350 HP	2350	129.3	112.6	63.8	44.5	32.9	30.0	126.0	107.7	61.2	42.8	31.6	28.5
T-2500 HP	2500	137.5	119.8	67.9	47.3	35.0	31.9	134.0	114.6	65.1	45.5	33.7	30.4
T-2650 HP	2650	145.8	127.0	71.9	50.2	37.1	33.8	142.1	121.5	69.0	48.2	35.7	32.2
T-2800 HP	2800	154.0	134.2	76.0	53.0	39.2	35.7	150.1	128.4	73.0	51.0	37.7	34.0
T-3000 HP	3000	165.0	143.7	81.4	56.8	42.0	38.3	160.9	137.6	78.2	54.6	40.4	36.4
T-3200 HP	3200	176.0	153.3	86.9	60.6	44.8	40.8	171.6	146.7	83.4	58.2	43.1	38.9
T-3500 HP	3500	192.5	167.7	95.0	66.3	49.0	44.6	187.7	160.5	91.2	63.7	47.1	42.5
T-4000 HP	4000	220.0	191.7	108.6	75.8	56.0	51.0	214.5	183.4	104.2	72.8	53.8	48.6
T-4300 HP	4300	236.5	206.0	116.7	81.4	60.2	54.8	230.6	197.2	112.0	78.3	57.9	52.2
T-4500 HP	4500	247.5	215.6	122.1	85.2	63.0	57.4	241.3	206.3	117.2	81.9	60.6	54.6
T-5000 HP	5000	275.0	239.6	135.7	94.7	70.0	63.8	268.1	229.3	130.3	91.0	67.3	60.7
T-5500 HP	5500	302.5	263.5	149.3	104.2	77.0	70.1	294.9	252.2	143.3	100.1	74.0	66.8
T-5800 HP	5800	319.0	277.9	157.4	109.8	81.2	74.0	311.0	265.9	151.1	105.6	78.1	70.4
T-6000 HP	6000	330.0	287.5	162.9	113.6	84.0	76.5	321.7	275.1	156.3	109.2	80.8	72.9

# Discharge Characteristics in Watts/Cell @ 27°C

Model Type	Nominal Capacity (AH) at C <sub>10</sub>	1.67 ECV					1.70 ECV				
		Discharge in Minutes					Discharge in Minutes				
		5	10	15	30	60	5	10	15	30	60
T-100 HP	100	291	242	220	160	118	290	238	213	159	117
T-150 HP	150	435	363	331	241	178	435	358	320	239	176
T-200 HP	200	580	485	441	321	237	580	477	426	318	234
T-250 HP	250	726	606	551	401	296	725	596	533	398	292
T-300 HP	300	871	727	661	481	355	870	715	640	477	350
T-350 HP	350	1016	849	772	561	415	1015	834	746	557	409
T-400 HP	400	1161	970	882	641	474	1160	953	853	636	467
T-450 HP	450	1306	1091	992	721	533	1306	1072	959	716	526
T-500 HP	500	1452	1212	1102	801	592	1451	1191	1066	795	584
T-550 HP	550	1597	1333	1212	882	651	1595	1311	1172	875	643
T-600 HP	600	1742	1454	1322	962	710	1740	1430	1279	955	701
T-650 HP	650	1887	1576	1432	1042	770	1886	1549	1386	1034	759
T-680 HP	680	1974	1648	1499	1090	805	1973	1621	1450	1082	794
T-760 HP	760	2207	1842	1675	1218	900	2205	1812	1620	1209	888
T-850 HP	850	2468	2061	1873	1362	1006	2466	2025	1812	1352	993
T-925 HP	925	2686	2242	2039	1482	1095	2684	2205	1972	1472	1081
T-1000 HP	1000	2903	2424	2204	1603	1184	2901	2384	2132	1591	1168
T-1100 HP	1100	3194	2667	2424	1763	1302	3191	2622	2345	1750	1285
T-1200 HP	1200	3484	2909	2645	1923	1421	3481	2860	2558	1909	1402
T-1250 HP	1250	3629	3031	2755	2003	1480	3626	2979	2665	1989	1460
T-1360 HP	1360	3948	3297	2997	2179	1610	3945	3241	2899	2164	1589
T-1440 HP	1440	4181	3490	3173	2308	1705	4177	3431	3070	2291	1682
T-1500 HP	1500	4355	3636	3306	2404	1776	4352	3575	3198	2386	1752
T-1600 HP	1600	4646	3879	3526	2564	1894	4642	3813	3411	2545	1869
T-1700 HP	1700	4935	4121	3746	2724	2013	4931	4052	3624	2705	1986
T-1850 HP	1850	5371	4485	4077	2965	2190	5367	4409	3944	2943	2161
T-2000 HP	2000	5806	4848	4408	3205	2368	5802	4766	4264	3182	2336
T-2200 HP	2200	6387	5333	4848	3526	2605	6382	5243	4690	3500	2570
T-2350 HP	2350	6823	5696	5179	3766	2782	6817	5600	5010	3739	2745
T-2500 HP	2500	7258	6060	5510	4006	2960	7252	5958	5329	3977	2920
T-2650 HP	2650	7693	6424	5840	4247	3137	7687	6316	5649	4216	3096
T-2800 HP	2800	8129	6788	6171	4487	3315	8123	6673	5969	4454	3271
T-3000 HP	3000	8710	7272	6611	4808	3552	8703	7150	6395	4773	3505
T-3200 HP	3200	9290	7757	7052	5128	3788	9283	7627	6821	5091	3738
T-3500 HP	3500	10161	8484	7713	5609	4144	10154	8341	7461	5568	4089
T-4000 HP	4000	11613	9697	8815	6410	4736	11604	9533	8527	6364	4673
T-4300 HP	4300	12484	10423	9476	6891	5091	12474	10248	9167	6841	5023
T-4500 HP	4500	13064	10908	9917	7211	5328	13055	10725	9593	7159	5257
T-5000 HP	5000	14516	12120	11019	8013	5919	14506	11916	10659	7954	5841
T-5500 HP	5500	15968	13332	12121	8814	6511	15956	13108	11725	8750	6425
T-5800 HP	5800	16839	14059	12782	9295	6867	16826	13823	12364	9227	6776
T-6000 HP	6000	17419	14544	13223	9615	7104	17407	14299	12790	9545	7009

# Discharge Characteristics in Watts/Cell @ 27°C

1.75 ECV																
Model Type	Nominal Capacity (Ah) at C <sub>10</sub>	Discharge in Minutes				Discharge in Hours										
		5	10	15	30	1	1.5	2	3	4	5	6	7	8	9	10
T-100 HP	100	261	213	200	149	108	83	68	51	43	33	29	26	24	22	21
T-150 HP	150	393	320	299	224	162	124	101	77	65	50	43	38	37	32	30
T-200 HP	200	523	427	399	298	216	165	135	102	86	66	57	51	49	43	40
T-250 HP	250	654	533	499	373	271	207	169	127	108	83	71	63	61	54	50
T-300 HP	300	785	639	599	447	325	248	203	152	129	99	85	76	73	65	60
T-350 HP	350	915	746	698	522	379	290	237	178	151	116	100	89	86	75	70
T-400 HP	400	1046	852	798	596	433	331	271	203	172	132	114	102	98	86	80
T-450 HP	450	1177	959	898	671	487	373	305	229	194	149	128	114	110	97	90
T-500 HP	500	1308	1066	998	745	541	414	339	254	215	165	142	127	122	108	100
T-550 HP	550	1439	1172	1097	820	595	455	372	280	237	182	157	140	134	118	110
T-600 HP	600	1569	1279	1197	894	649	496	406	305	258	198	171	153	146	129	120
T-650 HP	650	1701	1385	1297	968	703	538	440	330	279	215	185	166	158	140	131
T-680 HP	680	1778	1449	1357	1013	736	563	460	345	292	225	194	173	166	147	137
T-760 HP	760	1987	1620	1516	1132	822	629	515	386	326	251	216	194	185	164	153
T-850 HP	850	2223	1812	1696	1266	920	703	576	432	365	281	242	217	207	183	171
T-925 HP	925	2420	1971	1846	1378	1001	765	626	470	397	305	263	236	226	199	186
T-1000 HP	1000	2615	2131	1995	1489	1082	827	677	508	429	330	285	255	244	216	201
T-1100 HP	1100	2878	2345	2195	1638	1190	910	745	559	472	363	313	280	268	237	221
T-1200 HP	1200	3139	2557	2394	1787	1298	993	813	610	515	396	341	306	293	259	241
T-1250 HP	1250	3270	2664	2494	1862	1352	1034	846	635	537	413	356	318	305	269	251
T-1360 HP	1360	3557	2898	2713	2026	1471	1125	921	691	584	449	387	346	332	293	273
T-1440 HP	1440	3767	3069	2873	2145	1558	1192	975	731	618	476	410	367	351	310	289
T-1500 HP	1500	3924	3197	2993	2234	1623	1241	1016	762	644	495	427	382	366	323	301
T-1600 HP	1600	4185	3410	3192	2383	1731	1324	1083	813	687	528	455	408	390	345	321
T-1700 HP	1700	4447	3622	3392	2532	1839	1407	1151	863	730	561	484	433	414	366	341
T-1850 HP	1850	4839	3943	3691	2755	2001	1531	1253	940	794	611	526	471	451	399	371
T-2000 HP	2000	5232	4262	3990	2979	2164	1655	1354	1016	858	660	569	509	488	431	402
T-2200 HP	2200	5754	4688	4389	3277	2380	1820	1490	1117	944	726	626	560	536	474	442
T-2350 HP	2350	6147	5008	4689	3500	2542	1945	1591	1194	1009	776	669	599	573	506	472
T-2500 HP	2500	6539	5328	4988	3724	2705	2069	1693	1270	1073	826	711	637	610	539	502
T-2650 HP	2650	6931	5648	5287	3947	2867	2193	1794	1346	1137	875	754	675	646	571	532
T-2800 HP	2800	7324	5967	5586	4170	3029	2317	1896	1422	1202	925	797	713	683	603	562
T-3000 HP	3000	7847	6394	5985	4468	3246	2482	2031	1524	1288	991	854	764	731	647	602
T-3200 HP	3200	8370	6819	6385	4766	3462	2648	2167	1625	1373	1056	910	815	779	690	642
T-3500 HP	3500	9154	7458	6983	5213	3786	2896	2370	1778	1502	1156	996	892	853	754	703
T-4000 HP	4000	10462	8524	7981	5958	4327	3310	2709	2032	1717	1321	1138	1019	975	862	803
T-4300 HP	4300	11247	9164	8579	6405	4652	3558	2912	2184	1846	1420	1224	1095	1048	927	863
T-4500 HP	4500	11771	9589	8978	6703	4868	3724	3047	2286	1931	1486	1281	1146	1097	970	904
T-5000 HP	5000	13078	10655	9976	7447	5409	4137	3386	2540	2146	1651	1423	1274	1219	1078	1004
T-5500 HP	5500	14386	11721	10973	8192	5950	4551	3724	2794	2361	1816	1565	1401	1341	1185	1104
T-5800 HP	5800	15171	12360	11572	8639	6275	4799	3928	2946	2489	1915	1651	1477	1414	1250	1165
T-6000 HP	6000	15693	12786	11971	8936	6491	4965	4062	3048	2575	1981	1707	1528	1462	1292	1204



**HBL<sup>®</sup>**

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