



The CELLYTE CMTG Series

2 Volt flat plate Gel batteries
fitted with SEC CatVent™
catalyst

Long lasting
capacity for
deep-cycling
applications





CMTG



Specification

Positive electrode:	Lead Calcium high Tin grid alloy
Negative electrode:	Lead Calcium grid alloy
Float charge voltage:	2.25 - 2.30 vpc ± 1% at 25°C
Cyclic charge voltage:	2.35 - 2.40 vpc ± 1% at 25°C
Electrolyte:	Thixotropic high purity silica Gel electrolyte
Safety valve:	1-3 psi self-resealing
Separators:	Microporous gel separators
Terminals:	Integral brass insert for M-10 bolt
Capacity:	2V 100Ah - 2V 1500Ah at C/10 to 1.80vpc @ 25°C

Design life

Float life:	20-years in float service @ 30°C with an approved catalyst
Cycle life:	1500 cycles @ 80% DOD at 25°C

Product compliance

IEC	60896-21/22-2004
BS	6290 part 4
UL component approval	
Eurobat	

Company accreditation

ISO	9001:2015
ISO	14001:2004

Product information

The Cellyte CMTG series

Powerful, reliable, premium performance

The Cellyte CMTG series uses VRLA principles and premium construction to produce a powerful, no-nonsense Gel battery. The CMTG is perfect for deep-cycling applications where a high-power, reliable solution is required.

As SEC's flagship high-capacity Gel battery, the CMTG has been internationally certified by the best in the industry. It has a 20-year design life and offers up to 1500 cycles at 80% DOD in the correct environment. The CMTG range is manufactured in SEC's ISO approved factories and is backed by a full 5-year warranty under float service as standard.

World-class construction and design

The Cellyte CMTG series is a heavy-duty top terminal cell, constructed with a hard plastic terminal cover designed for long life. Our engineers used European (IEC) dimensions so it is suited to a range of demanding applications. The CMTG is perfected with an SEC CatVent™ catalyst for extra long life. It also includes a Lead Calcium high Tin alloy in the positive grid to reduce corrosion and improve cycling ability.

This high-capacity series features a range of powerful options and a choice of standard, or flame-retardant casing. Our engineers use internationally proven components including pure thixotropic gelled electrolyte, Swedish safety valves and Japanese triple-post sealant for extra protection.

Product features

- High-powered with a wide capacity range
- One-way safety valve for gas release
- Ideal for high-cycling applications
- Quality Lead Calcium Tin grid plates for high performance
- Fitted with life-extending CatVent™ catalyst
- Spill-proof and leak-proof with triple-sealed posts
- Standard or flame retardant container options
- Vast operating temperature range
- Includes deep-cycling, high-purity thixotropic gelled electrolyte
- Long service life when used in correct conditions
- Engineered with international components
- For use in vertical or horizontal positions



“The CMTG range of 2 Volt cells incorporate a high Tin Lead Calcium alloy to improve the depth and extent of their cycle life. When combined with the CatVent™ catalyst, the CMTG range provides a high-energy and cost-efficient solution to cyclic applications.”

Dr Mike McDonagh

Product benefits

Reliable valve regulated Gel battery design

The CMTG is sealed and features a patented safety valve as standard. This reduces risk of accidental fire and optimises efficient operation. The valve does not allow the ingress of oxygen, which is harmful to the function and life of the battery.

Suited for vertical or horizontal rack use

This high-integrity, high-energy Gel battery is supplied as a free standing 2V vertical or horizontal cell. It can be paired with tubular style, zone-zero racking, or modular steel zone-four battery racking systems for increased security in earthquake prone areas.

Higher power and efficiency

The CMTG is a premium choice competing with the best in the market for power capability. Due to the advanced Lead Tin alloy construction of the plate grids, the battery has a lower resistance. This means it runs at a cooler temperature and has a higher charge acceptance. This is ideal for fast charging where applications demand a quick turnaround.

Extended battery life and cycle service

The CMTG was constructed for endurance and reliability. In the right conditions it has a design life of over 20-years at an average of 1500 charge/discharge cycles at 80% DOD.

Fitted with CatVent™ catalyst

The CMTG is fitted with SEC's industry-leading CatVent™ catalyst. This stabilises the negative plate, enhances the water recombination process, reduces cell dry out and plate corrosion, reduces float current by 50%, and reduces capacity loss. It's ideal for any high-powered cycling application.

Performs well under fluctuating temperature conditions

The operating limits for this battery are -15°C to +50°C. However, although suited to many applications over a wide temperature range, the CMTG, like all VRLA batteries is not recommended for continuous operation above 45°C.

Optimised grid design and paste formulation

SEC has optimised the grid design and paste formulation to maximise the operational and storage life of the battery. This feature gives excellent recovery from deep-discharge or over discharge; it also ensures low rates of self-discharge.

ISO:9001 Approved

With installation of the most modern production and design equipment, SEC ensures that continuous product improvement is a given. SEC has recently had our efforts recognised with the coveted TUV SUD ISO:9001-2015 accreditation and we're proud to remain the first in the industry to hold this mark of quality.

Applications



Telecommunication



UPS system



Photovoltaic system



Energy storage



Navigation aids



Control system



Standby power



Cellular radio



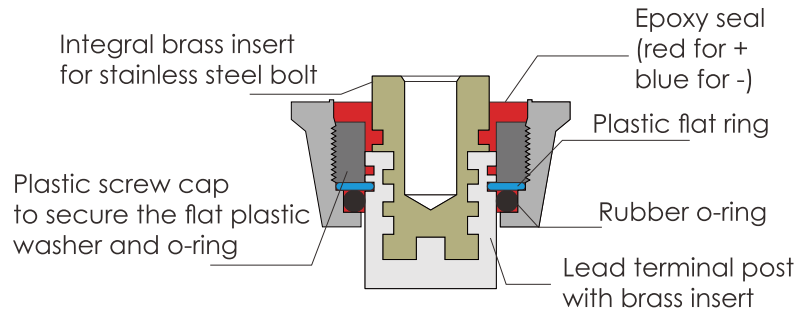
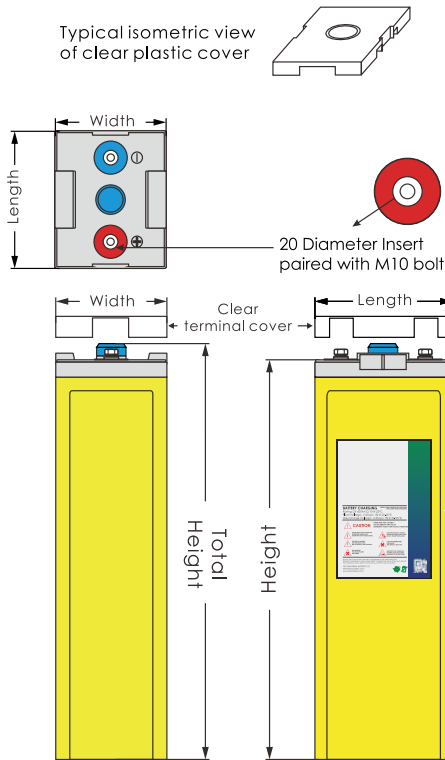
Alternative energy storage



Engineering

Cell outline

Triple-seal detail



Cell dimensions

Dimensions/ Weights/ Data

SEC cell type	Nominal capacity C/10 1.80 vpc	Battery weight		Overall battery dimension								Internal resistance (mΩ)	Maximum charge current (A)	Short circuit current (A)	No. of terminal post
				Length		Width		Height		Total height					
		kg	lbs	mm	Inch	mm	Inch	mm	Inch	mm	Inch				
2-CMTG-100	100	7.50	16.5	187	7.36	102	4.02	278	10.9	300	11.8	0.70	20.0	1080	2
2-CMTG-150	150	10.0	22.0	187	7.36	102	4.02	278	10.9	300	11.8	0.60	30.0	1500	2
2-CMTG-200	200	12.5	27.6	187	7.36	102	4.02	374	14.7	396	15.6	0.50	40.0	1600	2
2-CMTG-250	250	15.0	33.1	187	7.36	102	4.02	374	14.7	396	15.6	0.45	50.0	1900	2
2-CMTG-300	300	17.5	38.6	187	7.36	102	4.02	374	14.7	396	15.6	0.40	60.0	2400	2
2-CMTG-350	350	22.5	49.6	187	7.36	151	5.94	374	14.7	396	15.6	0.39	70.0	2900	2
2-CMTG-400	400	24.5	54.0	187	7.36	151	5.94	374	14.7	396	15.6	0.36	80.0	3200	2
2-CMTG-420	420	25.0	55.1	187	7.36	151	5.94	374	14.7	396	15.6	0.35	84.0	3300	2
2-CMTG-450	450	26.0	57.3	187	7.36	151	5.94	374	14.7	396	15.6	0.34	90.0	3600	2
2-CMTG-500	500	31.0	68.3	187	7.36	151	5.94	543	21.4	565	22.2	0.34	100	4000	2



Cell dimensions

Dimensions/ Weights/ Data

SEC cell type	Nominal capacity C/10 1.80 vpc	Battery weight		Overall battery dimension								Internal resistance (mΩ)	Maximum charge current (A)	Short circuit current (A)	No. of terminal post
				Length		Width		Height		Total height					
				kg	lbs	mm	Inch	mm	Inch	mm	Inch				
2-CMTG-550	550	35.5	72.8	187	7.36	151	5.94	543	21.4	565	22.2	0.33	110	4500	2
2-CMTG-600	600	38.0	78.3	187	7.36	151	5.94	543	21.4	565	22.2	0.33	120	4800	2
2-CMTG-650	650	40.5	83.8	187	7.36	151	5.94	543	21.4	565	22.2	0.32	130	5100	2
2-CMTG-700	700	46.5	89.3	187	7.36	151	5.94	543	21.4	565	22.2	0.31	140	5600	4
2-CMTG-750	750	49.0	103	223	8.78	187	7.36	543	21.4	565	22.2	0.31	150	6000	4
2-CMTG-800	800	51.5	108	223	8.78	187	7.36	543	21.4	565	22.2	0.30	160	6400	4
2-CMTG-850	850	54.0	114	223	8.78	187	7.36	543	21.4	565	22.2	0.29	170	6900	4
2-CMTG-900	900	59.0	119	223	8.78	187	7.36	543	21.4	565	22.2	0.29	180	7300	4
2-CMTG-1000	1000	64.0	130	223	8.78	187	7.36	543	21.4	565	22.2	0.28	200	7900	4
2-CMTG-1100	1100	67.0	141	223	8.78	187	7.36	543	21.4	565	22.2	0.28	220	8600	4
2-CMTG-1200	1200	72.0	148	223	8.78	187	7.36	643	25.3	665	26.2	0.27	240	9000	4
2-CMTG-1300	1300	77.0	159	223	8.78	187	7.36	643	25.3	665	26.2	0.26	260	9500	4
2-CMTG-1400	1400	82.0	170	223	8.78	187	7.36	643	25.3	665	26.2	0.26	280	10500	4
2-CMTG-1500	1500	82	181	235	9.25	212	8.35	653	25.7	675	26.6	0.25	300	12000	4

Operating temperature

Design operating temperature	30°C with an approved catalyst
Limit for charging	-10 to +50°C
Limit for discharging	-15 to +50°C
Limit for storage	-20 to +50°C

Charging method

Float charge voltage at 25°C	2.25 - 2.30 vpc with temperature compensation
Cyclic charge voltage at 25°C	2.35 - 2.40 vpc with temperature compensation
Float charge temperature compensation factor	-3 mV/cell/°C above 25°C +3 mV/cell/°C below 25°C
Cyclic charge temperature compensation factor	-5 mV/cell/°C above 25°C +5 mV/cell/°C below 25°C



Capacity

Ampere Hour at 25°C

SEC cell type	Discharge ampere hour at 25°C																	
	End volts /Cell	Discharge time in minutes			End Volts /Cell	Discharge time in hours												
		15min	30min	45min		1hr	1.5hr	2hr	3hr	4hr	5hr	6hr	8hr	10hr	12hr	24hr	48hr	100hr
2-CMTG-100	1.75	116	86.6	70.2	1.80	54.2	60.4	66.1	74.0	80.7	85.0	89.4	98.0	100	103	111	113	122
2-CMTG-150	1.75	174	130	105	1.80	81.3	90.6	99.2	111	121	128	134	147	150	155	167	169	183
2-CMTG-200	1.75	232	173	140	1.80	108	121	132	148	161	170	179	196	200	206	222	226	244
2-CMTG-250	1.75	290	216	175	1.80	136.0	151.0	165.0	185	202	213	224	245	250	258	278	283	305
2-CMTG-300	1.75	348	260	211	1.80	163	181	198	222	242	255	268	294	300	309	333	339	366
2-CMTG-350	1.75	406	303	246	1.80	190	211	231	259	282	298	313	343	350	361	389	396	427
2-CMTG-400	1.75	464	346	281	1.80	217	242	264	296	323	340	358	392	400	412	444	452	488
2-CMTG-420	1.75	487	364	295	1.80	228	254	278	311	339	357	375	412	420	433	466	475	512
2-CMTG-450	1.75	522	390	316	1.80	244	272	297	333	363	383	402	441	450	464	499	509	549
2-CMTG-500	1.75	580	433	351	1.80	271	302	330	369	404	426	447	490	500	516	554	566	610
2-CMTG-550	1.75	638	476	386	1.80	298	332	364	407	444	468	492	539	550	567	611	622	670
2-CMTG-600	1.75	696	519	421	1.80	325	362	396	444	484	510	536	588	600	619	667	677	731
2-CMTG-650	1.75	754	563	456	1.80	352	393	430	480	524	553	581	637	650	670	722	734	792
2-CMTG-700	1.75	812	606	491	1.80	379	423	462	518	564	595	624	686	700	721	778	792	853
2-CMTG-750	1.75	870	649	526	1.80	407	453	496	555	604	638	671	735	750	773	833	848	914
2-CMTG-800	1.75	928	692	562	1.80	434	483	528	591	644	680	714	784	800	824	888	905	975
2-CMTG-850	1.75	986	736	597	1.80	461	513	562	629	684	723	760	832	850	876	943	960	1036
2-CMTG-900	1.75	1044	779	632	1.80	488	543	594	666	726	765	804	880	900	928	1000	1018	1097
2-CMTG-1000	1.75	1160	866	702	1.80	542	604	661	740	807	850	894	980	1000	1031	1111	1131	1220
2-CMTG-1100	1.75	1276	952	772	1.80	596	664	727	813	888	935	983	1078	1100	1134	1222	1243	1340
2-CMTG-1200	1.75	1392	1039	842	1.80	650	725	793	888	968	1020	1073	1176	1200	1236	1333	1357	1460



Capacity

Ampere Hour at 25°C

SEC cell type	End volts /Cell	Discharge ampere hour at 25°C																	
		Discharge time in minutes			End Volts /Cell	Discharge time in hours													
		15min	30min	45min		1hr	1.5hr	2hr	3hr	4hr	5hr	6hr	8hr	10hr	12hr	24hr	48hr	100hr	
2-CMTG-1300	1.75	1508	1125	912	1.80	705	785	859	962	1048	1105	1162	1272	1300	1340	1444	1469	1580	
2-CMTG-1400	1.75	1624	1212	983	1.80	759	846	925	1035	1128	1190	1252	1372	1400	1440	1555	1583	1707	
2-CMTG-1500	1.75	1740	1298	1053	1.80	813	906	992	1110	1211	1275	1341	1470	1500	1547	1666	1694	1829	

Current

Amps at 25°C

SEC cell type	End volts /Cell	Discharge amps at 25°C																	
		Discharge time in minutes			End Volts /Cell	Discharge time in hours													
		15min	30min	45min		1hr	1.5hr	2hr	3hr	4hr	5hr	6hr	8hr	10hr	12hr	24hr	48hr	100hr	
2-CMTG-100	1.75	116	86.6	70.2	1.80	54.2	40.3	33.1	24.7	20.2	17.0	14.9	12.3	10.0	8.58	4.63	2.35	1.22	
2-CMTG-150	1.75	174	130	105	1.80	81.3	60.4	49.6	37.0	30.3	25.5	22.3	18.4	15.0	12.9	6.94	3.53	1.83	
2-CMTG-200	1.75	232	173	140	1.80	108	80.5	66.0	49.3	40.3	34.0	29.8	24.5	20.0	17.2	9.25	4.71	2.44	
2-CMTG-250	1.75	290	216	175	1.80	136	101	82.5	61.7	50.4	42.6	37.3	30.6	25.0	21.5	11.6	5.89	3.05	
2-CMTG-300	1.75	348	260	211	1.80	163	121	99.0	74.0	60.5	51.0	44.7	36.8	30.0	25.8	13.9	7.06	3.66	
2-CMTG-350	1.75	406	303	246	1.80	190	141	116	86.3	70.5	59.6	52.2	42.9	35.0	30.1	16.2	8.25	4.27	
2-CMTG-400	1.75	464	346	281	1.80	217	161	132	98.7	80.7	68.0	59.6	49.0	40.0	34.3	18.5	9.42	4.88	
2-CMTG-420	1.75	487	364	295	1.80	228	169	139	104	84.7	71.4	62.5	51.5	42.0	36.1	19.4	9.90	5.12	
2-CMTG-450	1.75	522	390	316	1.80	244	181	149	111	90.8	76.6	67.0	55.1	45.0	38.7	20.8	10.6	5.49	
2-CMTG-500	1.75	580	433	351	1.80	271	201	165	123	101	85.1	74.5	61.3	50.0	43.0	23.1	11.8	6.10	
2-CMTG-550	1.75	638	476	386	1.80	298	221	182	136	111	93.6	82.0	67.4	55.0	47.3	25.5	13.0	6.70	
2-CMTG-600	1.75	696	519	421	1.80	325	241	198	148	121	102	89.3	73.5	60.0	51.6	27.8	14.1	7.31	
2-CMTG-650	1.75	754	563	456	1.80	352	262	215	160	131	111	96.8	79.6	65.0	55.8	30.1	15.3	7.92	
2-CMTG-700	1.75	812	606	491	1.80	379	282	231	173	141	119	104	85.8	70.0	60.1	32.4	16.5	8.53	
2-CMTG-750	1.75	870	649	526	1.80	407	302	248	185	151	128	112	91.9	75.0	64.4	34.7	17.7	9.14	



Current

Amps at 25°C

SEC cell type	Discharge amps at 25°C																	
	End volts /Cell	Discharge time in minutes			End Volts /Cell	Discharge time in hours												
		15min	30min	45min		1hr	1.5hr	2hr	3hr	4hr	5hr	6hr	8hr	10hr	12hr	24hr	48hr	100hr
2-CMTG-800	1.75	928	692	562	1.80	434	322	264	197	161	136	119	98.0	80.0	68.7	37.0	18.9	9.75
2-CMTG-850	1.75	986	736	597	1.80	461	342	281	210	171	145	127	104	85.0	73.0	39.3	20.0	10.4
2-CMTG-900	1.75	1044	779	632	1.80	488	362	297	222	182	153	134	110	90.0	77.3	41.7	21.2	11.0
2-CMTG-1000	1.75	1160	866	702	1.80	542	403	331	247	202	170	149	123	100	85.9	46.3	23.6	12.2
2-CMTG-1100	1.75	1276	952	772	1.80	596	443	364	271	222	187	164	135	110	94.5	50.9	25.9	13.4
2-CMTG-1200	1.75	1392	1039	842	1.80	650	483	397	296	242	204	179	147	120	103	55.5	28.3	14.6
2-CMTG-1300	1.75	1508	1125	912	1.80	705	523	430	321	262	221	194	159	130	112	60.2	30.6	15.8
2-CMTG-1400	1.75	1624	1212	983	1.80	759	564	463	345	282	238	209	172	140	120	64.8	33.0	17.1
2-CMTG-1500	1.75	1740	1298	1053	1.80	813	604	496	370	303	255	224	184	150	129	69.4	35.3	18.3

Power

Watts/cell at 25°C

SEC cell type	Discharge watts/cell at 25°C																	
	End volts /Cell	Discharge time in minutes			End Volts /Cell	Discharge time in hours												
		15min	30min	45min		1hr	1.5hr	2hr	3hr	4hr	5hr	6hr	8hr	10hr	12hr	24hr	48hr	100hr
2-CMTG-100	1.75	209	158	130	1.80	103	76.9	63.5	47.8	39.3	33.3	29.3	24.2	19.8	17.1	9.25	4.71	2.48
2-CMTG-150	1.75	313	237	194	1.80	154	115	95.2	71.7	59.0	50.0	43.9	36.3	29.8	25.7	13.9	7.06	3.72
2-CMTG-250	1.75	522	394	323	1.80	258	192	158	119	98.3	83.5	73.3	60.5	49.6	42.8	23.2	11.8	6.20
2-CMTG-300	1.75	626	475	389	1.80	309	230	190	143	118	100	87.8	72.7	59.5	51.2	27.8	14.1	7.44
2-CMTG-350	1.75	731	553	454	1.80	360	269	222	167	137	117	103	84.8	69.4	59.8	32.4	16.5	8.69
2-CMTG-400	1.75	835	631	518	1.80	411	307	253	191	157	133	117	96.9	79.4	68.3	37.0	18.8	9.93
2-CMTG-420	1.75	877	664	544	1.80	432	323	267	201	165	140	123	102	83.3	71.8	38.8	19.8	10.4
2-CMTG-450	1.75	940	712	583	1.80	462	346	285	215	177	150	132	109	89.3	76.9	41.6	21.2	11.2



Power

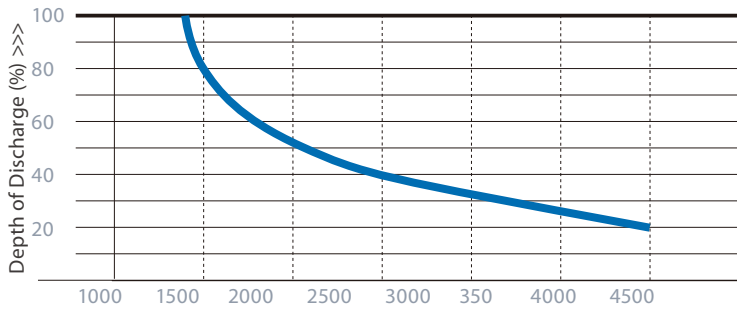
Watts/cell at 25°C

SEC cell type	Discharge watts/cell at 25°C																	
	End volts /Cell	Discharge time in minutes			End Volts /Cell	Discharge time in hours												
		15min	30min	45min		1hr	1.5hr	2hr	3hr	4hr	5hr	6hr	8hr	10hr	12hr	24hr	48hr	100hr
2-CMTG-500	1.75	1044	790	648	1.80	513	384	317	238	197	167	146	121	99.2	85.5	46.2	23.6	12.4
2-CMTG-550	1.75	1148	869	712	1.80	564	422	349	263	216	183	161	133	109	94.0	50.9	25.9	13.6
2-CMTG-600	1.75	1253	947	777	1.80	616	461	380	287	236	200	176	145	119	103	55.6	28.2	14.9
2-CMTG-650	1.75	1357	1027	841	1.80	667	500	413	310	255	217	190	157	129	111	60.2	30.6	16.1
2-CMTG-700	1.75	1462	1106	906	1.80	718	538	444	334	275	233	204	170	139	120	64.8	33.0	17.4
2-CMTG-750	1.75	1566	1184	970	1.80	771	577	476	358	294	250	220	182	149	128	69.4	35.3	18.6
2-CMTG-800	1.75	1670	1263	1037	1.80	822	615	507	382	314	266	234	194	159	137	74.0	37.7	19.8
2-CMTG-850	1.75	1775	1343	1101	1.80	873	653	540	406	333	283	249	206	169	145	78.6	40.0	21.1
2-CMTG-900	1.75	1879	1422	1166	1.80	924	691	570	430	354	300	263	217	179	154	83.3	42.4	22.3
2-CMTG-1000	1.75	2088	1580	1295	1.80	1027	769	635	478	393	333	293	242	198	171	92.6	47.1	24.8
2-CMTG-1100	1.75	2297	1737	1424	1.80	1129	845	698	525	433	366	322	266	218	188	102	51.8	27.3
2-CMTG-1200	1.75	2506	1896	1553	1.80	1231	922	761	573	472	400	352	291	238	205	111	56.5	29.7
2-CMTG-1300	1.75	2714	2053	1683	1.80	1335	998	825	621	511	433	381	314	258	222	120	61.2	32.1
2-CMTG-1400	1.75	2923	2212	1814	1.80	1438	1077	888	668	550	466	410	339	278	239	130	66.0	34.7
2-CMTG-1500	1.75	3132	2369	1943	1.80	1540	1153	952	717	590	500	439	363	298	256	139	70.6	37.2



Cycle life

Relationship between depth of discharge and life
Ambient temperature 25°C

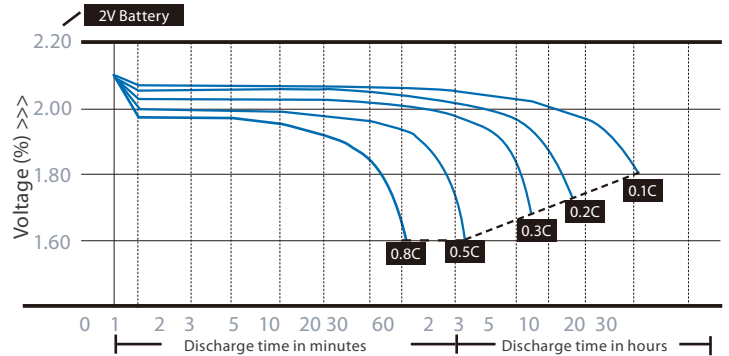


Cycle Life >>>

The depth of discharge critically affects the number of cycles which a battery will complete during its life time.

Discharge characteristics

Discharge current VS discharge time curve
Ambient temperature 25°C

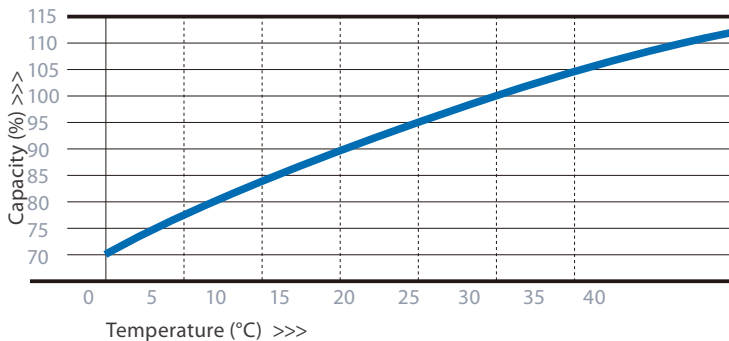


Discharge duration (h) >>>

Effect of discharge rate on battery capacity.

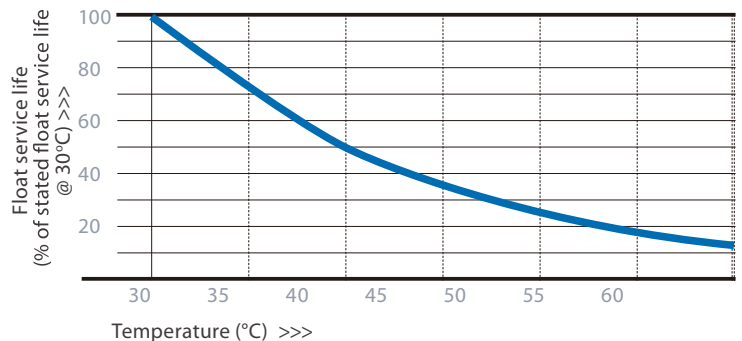
Effect of inclined temperature

Effect of temperature on capacity at C/10 discharge rate



A high ambient temperature will increase the cell capacity but will significantly shorten its calendar and cycle life.

Float service life VS temperature

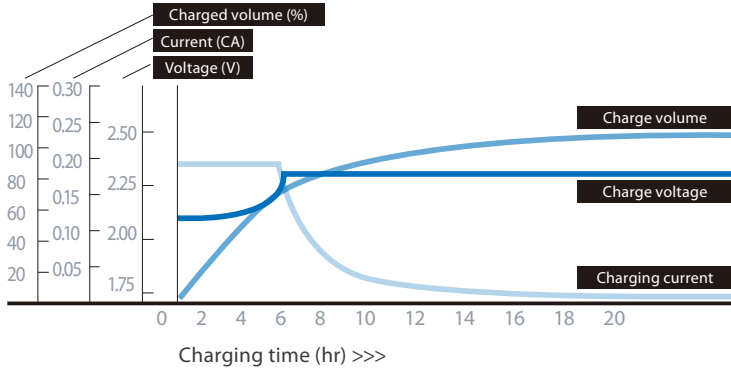


Effect of temperature on float service life.



Charge method

Constant current/voltage charge characteristics



The preferred charging procedure should be in accordance with DIN 41773, constant current/constant voltage (IU characteristic). Constant float charging utilising a constant voltage charger is also acceptable.

Charging voltage measured at the battery terminals: $2.35 - 2.40 \pm 1\% \times \text{number of cells}$.

Equalising or fast charging can occasionally be permitted in which the charging voltage is $2.40V \times \text{number of cells}$ for a maximum fixed period of 8 hours (depends on state of charge). This will apply in deep discharge and limited recharge operations such as stand-by with parallel connections. Automatic changeover to the float charging voltage of $2.25 - 2.30V \pm 1\% \times \text{number of cells}$ should follow after this period.

Actual performance data may be $\pm 5\%$ (for data & weight); $\pm 2\%$ (for dimension) from the figure shown.

Charge compensation

Temperature compensation for float voltage

