



The MICROLYTE MP Series

6/12 Volt flat plate monobloc
AGM batteries

**A multipurpose,
AGM connecting
quality with cost
efficiency**





Specification

Positive electrode:	Lead Calcium Tin grid alloy
Negative electrode:	Lead Calcium grid alloy
Float voltage:	2.25 - 2.30 vpc ± 1% at 25°C
Max. charge voltage:	2.50 vpc ± 1% at 25°C
Electrolyte:	Sulphuric acid absorbed into AGM separator
Safety valve:	1-3 psi self-resealing
Separators:	Absorbent glass mat (AGM) separator
Terminals:	Integral brass insert for stainless steel bolt
Electrical:	6V 1.2Ah to 205Ah & 12V 1.2Ah to 250Ah at C/10 to 1.75vpc @ 25°C

Design life

Float life:	8-years in float service @ 25°C (For 35Ah to 275Ah)
Cycles:	200 cycles @ 80% DOD @ 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 Microlyte MP series

Valved regulated AGM

The Microlyte MP is a sealed, valve regulated AGM rechargeable Lead Acid battery that allows safe, trouble-free operation in any position. There is never any requirement to top up the electrolyte because over 99% of gases generated in normal operation are recombined inside the battery.

The MP is sealed with the exception of a one-way valve that opens when excess pressure builds up inside the battery. This controls the internal pressure of the battery, optimises the efficiency of the recombination reaction and minimises the loss of electrolyte as Hydrogen and Oxygen. These features come together to make for a long-lasting, safe and reliable power source.

ISO:9001 standards

SEC Industrial Battery Company are large-scale producers of industrial batteries and energy generation systems. The design team draw on a wealth of international experience and knowledge to produce high-quality, reliable products.

Installation of the most modern production and design equipment makes continuous product improvement a given. We have recently had our efforts recognised with the coveted TUV SUD ISO:9001-2015 accreditation and are proud to remain the first in the industry to hold this mark of quality.

High-quality components

By marrying cutting-edge technology and the world's best components, we make industrial batteries that dominate the global market. This allows us to supply our distribution partners with world-class products quickly, and for less than other tier-one brands.

The MICROLYTE MP is constructed with the highest regard to quality. Our engineers use high-purity, virgin Lead for the active components and the best possible raw materials for all other battery parts to build a high energy density battery.

The MP is assembled in a tough, non-conductive casing that's resistant to high impact. The battery can be stored for long periods of time without charge, and shipped by sea, road or air without special precaution.

Innovative design

- ↻ High-quality valve regulated AGM
- ↻ Latest plate formation technology
- ↻ Propriety virgin pure Lead alloy
- ↻ Low maintenance sealed construction
- ↻ Elevated capacity and cycle life
- ↻ Spill-proof and leak-proof
- ↻ Increased safety features
- ↻ Low self-discharge for long storage life
- ↻ Tough multicell container

“The best example of established advanced technology, perfectly designed and built for maximum performance and life.”

Dr. Mike McDonagh
SEC Group

Product Benefits

Increased safety

The MP is spill-proof and leak-proof with explosion-proof vents as standard to lower the risk of accidental fire. Our triple-post seal enhances durability, and provides extra security against leakage, preventing safety and performance risks through tracking.

Extremely low maintenance

The MP is designed for standby and float requirements. A hardy battery, it's ideal for the cost-sensitive end of the market. The MP does not require water additions over its life, making it virtually maintenance-free and offering peace of mind for operators in a range of applications.

Product consistency

The MICROLYTE MP has minimal product performance variation. This means there's a low risk of batteries going out of phase, which makes it a safe investment in multiple series or parallel string applications.

Long design and shelf life

The separator design prevents electrolyte stratification while special additives in the active material reduce self discharge and plate corrosion so the battery lasts longer. In the right conditions, it has a design life of five years, and a long shelf life.

Quick charging

The MP is a reliable all-rounder with extremely low internal resistance, providing quick recharge and operation with cooler temperatures. This makes it more efficient when your application demands a quick charge/ recharge turnaround.

High energy rating

The latest plate formation technology and the Lead Calcium grids mean that the MP will perform better and for a longer time. As a stand-by service battery made for the cost-sensitive end of the market, the MP is an ideal choice for a wide variety of applications.

Applications



UPS system



Telecommunication



Emergency lighting



Fire & security alarm system



Portable VTR/TV



Power tools



Computer



Fans



Electronic torch



Window washer

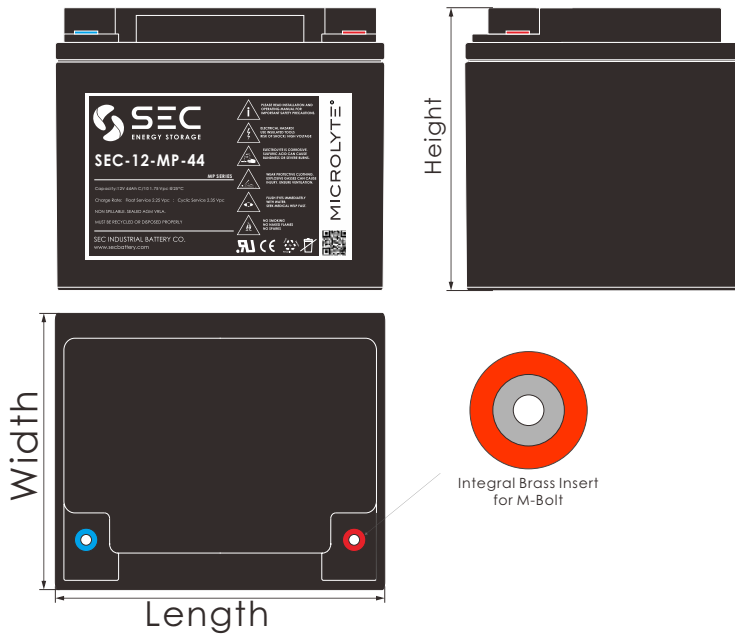


Golf Caddy



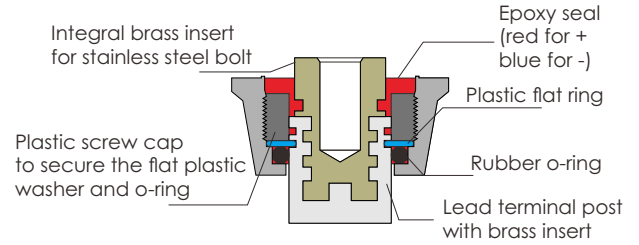
Leisure

Cell outline



Triple post seal detail

NOTE:-
Color of case & cover:
Black/Iron Grey



SEC TRIPLE-SEAL DESIGN

Terminal type

Terminal type	Description
ST1	FASTON TAB No. 187
ST2	FASTON TAB No. 250
FT2	12mm ø brass insert terminal for M5 bolt
FT3	14mm ø brass insert terminal for M6 bolt
FT4	16mm ø brass insert terminal for M6 bolt
FT5	16mm ø brass insert terminal for M8 bolt

Cell dimensions

Dimensions/ Weights/ Data

SEC bloc type	Nominal capacity (Ah) C/10 1.75 vpc	Battery weight		Overall battery dimension						Maximum discharge current (5s)	Maximum charge current (A)	Short circuit current (A)	Internal resistance (mΩ)	Female terminal type
				Length		Width		Overall Height						
		kg	lbs	mm	Inch	mm	Inch	mm	Inch					
6-MP-1.3	1.20	0.28	0.62	98.0	3.86	25.0	0.98	59.0	2.32	36	0.22	40.0	70.0	ST1
6-MP-3.2	3.10	0.60	1.32	124	4.88	34.0	1.34	65.0	2.56	70	0.56	100	30.0	ST1
6-MP-4.5	4.20	0.73	1.61	71.0	2.80	48.0	1.89	106	4.17	75	0.74	140	18.0	ST1
6-MP-4.5-SP	4.30	0.81	1.79	67.5	2.66	67.5	2.66	112	4.41	75	0.77	150	20.0	ST1
6-MP-7.0	6.80	0.99	2.18	151	5.94	34.0	1.34	99.0	3.90	105	1.06	200	13.0	ST1
6-MP-7.2	6.95	1.09	2.40	151	5.94	34.0	1.34	99.0	3.90	105	1.08	200	13.0	ST1
6-MP-7.5	7.20	1.14	2.51	151	5.94	34.0	1.34	99.0	3.90	105	1.12	200	13.0	ST1
6-MP-10	9.50	1.60	3.53	151	5.94	50.0	1.97	98.0	3.86	120	1.52	310	10.0	ST1
6-MP-12	11.0	1.75	3.86	151	5.94	50.0	1.97	98.0	3.86	180	2.10	380	10.0	ST1
6-MP-130	117	15.9	35.1	196	7.72	170	6.69	214	8.43	1400	20.6	3200	3.00	FT4
6-MP-200	175	28.8	63.5	306	12.0	168	6.61	225	8.86	2200	31.0	4600	2.40	FT5

* 12-MP-1.2, 12-MP-2.3, 12-MP-4.5, 12-MP-7.0, 12-MP-12, 12-MP-18, 12-MP-26, 12-MP-40, 12-MP-45 and 12-MP-65 are VdS certified.

Cell dimensions

Dimensions/ Weights/ Data

SEC bloc type	Nominal capacity (Ah) C/10 1.75 vpc	Battery weight		Overall battery dimension						Maximum discharge current (5s)	Maximum charge current (A)	Short circuit current (A)	Internal resistance (mΩ)	Female terminal type
				Length		Width		Overall Height						
		kg	lbs	mm	Inch	mm	Inch	mm	Inch					
6-MP-220	195	30.2	66.6	323	12.7	178	7.01	230	9.06	2600	34.4	5000	1.10	FT5
6-MP-230	205	31.5	69.4	243	9.57	188	7.40	275	10.8	3100	36.0	5500	1.00	FT5
12-MP-1.2*	1.20	0.60	1.32	97.0	3.82	43.5	1.71	58.0	2.28	36	0.22	50.0	130	ST1
12-MP-1.3	1.20	0.53	1.17	97.0	3.82	43.5	1.71	58.0	2.28	36	0.22	50.0	130	ST1
12-MP-2.2	2.00	0.81	1.79	179	7.05	35.0	1.38	66.0	2.60	60	0.37	70.0	90.0	ST1
12-MP-2.3*	2.00	0.82	1.81	179	7.05	35.0	1.38	66.0	2.60	60	0.37	70.0	90.0	ST1
12-MP-3.3	3.00	1.22	2.69	134	5.28	67.5	2.66	67.0	2.64	60	0.56	85.0	60.0	ST1
12-MP-4.5*	4.20	1.46	3.22	90.0	3.54	70.0	2.76	107	4.21	70	0.77	100	50.0	ST1
12-MP-5.0	4.80	1.60	3.53	90.0	3.54	70.0	2.76	107	4.21	75	0.86	135	40.0	ST1
12-MP-5.0-SP	4.80	1.74	3.84	151	5.94	51.5	2.03	100	3.94	80	0.86	130	40.0	ST1
12-MP-6.0	5.70	2.00	4.41	151	5.94	67.0	2.64	100	3.94	95	1.02	180	35.0	ST1&2
12-MP-7.0*	6.66	2.11	4.65	151	5.94	67.0	2.64	100	3.94	100	1.20	195	33.0	ST1&2
12-MP-7.2	6.80	2.12	4.67	151	5.94	67.0	2.64	100	3.94	100	1.22	200	31.0	ST1&2
12-MP-7.5	7.20	2.16	4.76	151	5.94	67.0	2.64	100	3.94	105	1.30	205	30.0	ST1&2
12-MP-8.0	7.50	2.33	5.14	151	5.94	67.0	2.64	100	3.94	110	1.36	210	29.0	ST1&2
12-MP-9.0	8.50	2.40	5.29	151	5.94	67.0	2.64	100	3.94	115	1.54	220	28.0	ST1&2
12-MP-12*	11.0	3.42	7.54	151	5.94	98.0	3.86	101	3.98	180	2.10	360	30.0	ST2
12-MP-14	13.0	3.88	8.55	151	5.94	98.0	3.86	101	3.98	200	2.40	420	27.0	ST2
12-MP-18*	17.0	5.23	11.5	181	7.13	77.0	3.03	167	6.57	250	3.06	585	14.0	FT2
12-MP-20	18.5	5.70	12.6	181	7.13	77.0	3.03	167	6.57	265	3.50	700	11.0	FT2
12-MP-24-A	22.3	7.60	16.8	165	6.50	125	4.92	176	6.93	270	4.15	940	9.00	FT2
12-MP-24-B	22.5	7.58	16.7	175	6.89	166	6.54	125	4.92	270	4.20	940	9.20	FT2
12-MP-26-A	24.0	8.07	17.8	165	6.50	125	4.92	176	6.93	288	4.40	950	8.00	FT2
12-MP-26-B	24.0	7.90	17.4	175	6.89	166	6.54	125	4.92	288	4.35	950	8.20	FT2

* 12-MP-1.2, 12-MP-2.3, 12-MP-4.5, 12-MP-7.0, 12-MP-12, 12-MP-18, 12-MP-26, 12-MP-40, 12-MP-45 and 12-MP-65 are VdS certified.

Cell dimensions

Dimensions/ Weights/ Data

SEC bloc type	Nominal capacity (Ah) C/10 1.75 vpc	Battery weight		Overall battery dimension						Maximum discharge current (5s)	Maximum charge current (A)	Short circuit current (A)	Internal resistance (mΩ)	Female terminal type
				Length		Width		Overall Height						
				kg	lbs	mm	Inch	mm	Inch					
12-MP-26*	24.0	8.16	18.0	175	6.89	166	6.54	125	4.92	288	4.35	950	8.20	FT2
12-MP-28	26.0	8.60	19.0	165	6.50	125	4.92	176	6.93	300	4.80	1220	7.90	FT2
12-MP-35	32.0	9.20	20.3	196	7.72	131	5.16	181	7.13	330	5.64	1500	7.30	FT3
12-MP-40*	38.0	12.0	26.5	197	7.76	165	6.50	170	6.69	470	6.60	1600	6.80	FT3
12-MP-44	44.0	13.6	30.0	197	7.76	165	6.50	170	6.69	500	7.90	1700	6.00	FT3
12-MP-45*	44.0	13.8	30.4	197	7.76	165	6.50	170	6.69	500	7.90	1700	6.00	FT3
12-MP-55	55.0	16.5	36.4	230	9.06	138	5.43	210	8.27	700	9.50	1900	5.60	FT3
12-MP-65*	65.0	19.0	41.9	230	9.06	138	5.43	210	8.27	800	11.40	2000	5.50	FT3
12-MP-70	65.0	20.2	44.5	350	13.8	167	6.57	179	7.05	800	11.40	2000	5.50	FT3
12-MP-80	70.0	21.3	47.0	260	10.2	169	6.65	208	8.19	850	12.20	2100	5.40	FT3
12-MP-90	80.0	24.0	52.9	260	10.2	169	6.65	208	8.19	900	13.80	2400	4.50	FT3
12-MP-100	90.0	25.8	56.9	307	12.1	170	6.69	215	8.46	950	15.60	2650	4.30	FT3
12-MP-110	100	30.7	67.7	331	13.0	176	6.93	225	8.86	1000	17.60	2900	3.90	FT3
12-MP-120	110	31.2	68.8	331	13.0	176	6.93	225	8.86	1050	18.00	3000	3.40	FT3
12-MP-130	120	31.7	69.9	409	16.1	176	6.93	227	8.94	1100	21.00	3300	3.10	FT4
12-MP-150	135	39.7	87.5	342	13.5	173	6.81	285	11.2	1200	23.00	4200	2.90	FT5
12-MP-160	150	43.6	96.1	483	19.0	170	6.69	242	9.53	1600	26.00	4500	2.80	FT5
12-MP-175	160	48.3	106	530	20.9	209	8.23	225	8.86	1800	28.00	4500	2.60	FT5
12-MP-200	180	53.5	118	530	20.9	209	8.23	225	8.86	2400	31.00	4700	2.30	FT5
12-MP-220	200	61.0	134	522	20.6	240	9.45	225	8.86	2700	34.40	5400	2.20	FT5
12-MP-250	230	66.2	146	522	20.6	269	10.6	245	9.65	3200	39.20	6157	2.00	FT5
12-MP-275	250	72.3	159	522	20.6	269	10.6	245	9.65	3400	43.00	6464	1.90	FT5

Operating temperature

Design operating temperature	25°C
Limit for charging	-10 to +50°C
Limit for discharging	-15 to +50°C
Limit for storage	-20 to +50°C

Charging method

Float charging voltage at 25°C	2.25 - 2.30vpc with temperature compensation
Maximum charging voltage at 25°C	2.50vpc 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

* 12-MP-1.2, 12-MP-2.3, 12-MP-4.5, 12-MP-7.0, 12-MP-12, 12-MP-18, 12-MP-26, 12-MP-40, 12-MP-45 and 12-MP-65 are VdS certified.

Capacity

Ampere hour at 25°C

SEC bloc 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	20hr
6-MP-1.3	1.67	0.58	0.66	0.69	1.75	0.79	0.88	0.89	0.97	1.04	1.10	1.11	1.14	1.20	1.30
6-MP-3.2	1.67	1.48	1.67	1.76	1.75	2.00	2.22	2.26	2.46	2.63	2.80	2.83	2.90	3.10	3.30
6-MP-4.5	1.67	2.02	2.28	2.39	1.75	2.72	3.03	3.08	3.35	3.59	3.81	3.85	3.96	4.20	4.50
6-MP-4.5-SP	1.67	2.11	2.38	2.50	1.75	2.85	3.17	3.21	3.50	3.74	3.98	4.02	4.13	4.30	4.70
6-MP-7.0	1.67	3.14	3.54	3.72	1.75	4.24	4.71	4.79	5.22	5.58	5.93	5.99	6.15	6.80	7.00
6-MP-7.2	1.67	3.23	3.64	3.83	1.75	4.36	4.85	4.92	5.37	5.74	6.10	6.17	6.33	6.95	7.20
6-MP-7.5	1.67	3.37	3.79	3.99	1.75	4.54	5.05	5.13	5.59	5.98	6.36	6.42	6.59	7.20	7.50
6-MP-10	1.67	4.58	5.14	5.39	1.75	6.12	6.80	6.90	7.50	8.00	8.50	8.58	8.80	9.50	10.0
6-MP-12	1.67	5.38	6.07	6.38	1.75	7.27	8.08	8.21	8.95	9.56	10.2	10.3	10.5	11.0	12.0
6-MP-130	1.67	48.1	58.7	66.1	1.75	70.6	81.0	85.9	90.8	99.3	106	111	116	117	128
6-MP-200	1.67	72.2	88.1	99.1	1.75	106	122	129	136	149	159	167	174	175	192
6-MP-220	1.67	80.5	98.2	110	1.75	118	135	144	152	166	177	186	194	195	214
6-MP-230	1.67	84.2	103	116	1.75	124	142	150	159	174	185	194	203	205	224
12-MP-1.2*	1.67	0.54	0.68	0.77	1.75	0.78	0.90	0.94	1.02	1.06	1.10	1.14	1.16	1.20	1.30
12-MP-1.3	1.67	0.58	0.66	0.69	1.75	0.79	0.88	0.89	0.97	1.04	1.10	1.11	1.14	1.21	1.30
12-MP-2.2	1.67	0.99	1.11	1.17	1.75	1.33	1.48	1.50	1.64	1.75	1.86	1.88	1.93	2.00	2.20
12-MP-2.3*	1.67	0.86	1.09	1.24	1.75	1.25	1.45	1.53	1.65	1.79	1.85	1.91	1.92	2.00	2.20
12-MP-3.3	1.67	1.48	1.67	1.76	1.75	2.00	2.22	2.26	2.46	2.63	2.80	2.83	2.90	3.00	3.30
12-MP-4.5*	1.67	1.82	2.31	2.63	1.75	2.65	3.07	3.16	3.39	3.68	3.83	3.96	4.07	4.20	4.50
12-MP-5.0	1.67	2.24	2.53	2.66	1.75	3.03	3.37	3.42	3.73	3.98	4.24	4.28	4.40	4.80	5.00
12-MP-5.0-SP	1.67	2.24	2.53	2.66	1.75	3.03	3.37	3.42	3.73	3.98	4.24	4.28	4.40	4.80	5.00
12-MP-6.0	1.67	2.69	3.04	3.19	1.75	3.63	4.04	4.10	4.47	4.78	5.08	5.14	5.27	5.70	6.00
12-MP-7.0*	1.67	2.79	3.52	4.01	1.75	4.04	4.69	4.90	5.27	5.77	5.98	6.19	6.44	6.66	7.00
12-MP-7.2	1.67	3.23	3.64	3.83	1.75	4.36	4.85	4.92	5.37	5.74	6.10	6.17	6.33	6.80	7.20

Capacity

Ampere hour at 25°C

SEC bloc 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	20hr
12-MP-7.5	1.67	3.37	3.79	3.99	1.75	4.54	5.05	5.13	5.59	5.98	6.36	6.42	6.59	7.20	7.50
12-MP-8.0	1.67	3.59	4.05	4.26	1.75	4.84	5.39	5.47	5.96	6.37	6.78	6.85	7.03	7.50	8.00
12-MP-9.0	1.67	4.04	4.55	4.79	1.75	5.45	6.06	6.16	6.71	7.17	7.63	7.71	7.91	8.50	9.00
12-MP-12*	1.67	4.83	6.10	6.93	1.75	7.00	8.12	8.46	9.09	10.1	10.5	10.9	10.6	11.0	12.0
12-MP-14	1.67	6.28	7.08	7.45	1.75	8.48	9.43	9.58	10.4	11.2	11.9	12.0	12.3	13.0	14.0
12-MP-18*	1.67	6.80	8.60	9.83	1.75	9.90	11.5	12.6	13.5	14.8	15.3	15.8	16.5	17.0	18.0
12-MP-20	1.67	8.97	10.1	10.6	1.75	12.1	13.5	13.7	14.9	15.9	16.9	17.1	17.6	18.5	20.0
12-MP-24-A	1.67	10.8	12.1	12.8	1.75	14.5	16.2	16.4	17.9	19.1	20.3	20.6	21.1	22.3	24.0
12-MP-24-B	1.67	10.8	12.1	12.8	1.75	14.5	16.2	16.4	17.9	19.1	20.3	20.6	21.1	22.5	24.0
12-MP-26-A	1.67	11.7	13.2	13.8	1.75	15.7	17.5	17.8	19.4	20.7	22.0	22.3	22.9	24.0	26.0
12-MP-26-B	1.67	11.7	13.2	13.8	1.75	15.7	17.5	17.8	19.4	20.7	22.0	22.3	22.9	24.0	26.0
12-MP-26*	1.67	9.80	12.4	14.1	1.75	14.3	16.5	17.8	19.2	21.0	21.7	22.5	23.2	24.0	26.0
12-MP-28	1.67	12.6	14.2	14.9	1.75	17.0	18.9	19.2	20.9	22.3	23.7	24.0	24.6	26.0	28.0
12-MP-35	1.67	13.2	16.1	18.1	1.75	19.3	22.2	23.5	24.8	27.1	29.0	30.4	31.8	32.0	35.0
12-MP-40*	1.67	15.1	19.2	21.8	1.75	22.0	25.5	27.0	29.0	31.8	33.0	34.1	36.9	38.0	40.0
12-MP-44	1.67	17.3	21.1	23.7	1.75	25.4	29.1	30.9	32.6	35.7	38.1	39.9	41.8	44.0	46.0
12-MP-45*	1.67	16.7	21.1	23.9	1.75	24.2	28.1	32.6	35.0	38.1	39.5	40.9	42.7	44.0	46.0
12-MP-55	1.67	21.8	26.6	29.9	1.75	32.0	36.7	38.9	41.1	45.0	48.0	50.4	52.7	55.0	58.0
12-MP-65*	1.67	26.3	33.1	37.7	1.75	38.0	44.1	46.5	50.0	55.0	57.0	59.0	63.0	65.0	68.0
12-MP-70	1.67	25.6	31.2	35.1	1.75	37.5	43.0	45.6	48.2	52.7	56.3	59.0	61.7	65.0	68.0
12-MP-80	1.67	27.5	33.5	37.7	1.75	40.3	46.2	49.0	51.8	56.6	60.4	63.4	66.3	70.0	73.0
12-MP-90	1.67	32.0	39.0	43.9	1.75	46.9	53.8	57.0	60.3	65.9	70.3	73.8	77.2	80.0	85.0
12-MP-100	1.67	37.6	45.9	51.6	1.75	55.2	63.3	67.1	70.9	77.6	82.8	86.8	88.0	90.0	100
12-MP-110	1.67	41.4	50.5	56.8	1.75	60.7	69.6	73.8	78.0	85.3	91.0	95.5	96.0	100	110

Capacity

Ampere hour at 25°C

SEC bloc 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	20hr
12-MP-120	1.67	45.1	55.0	61.9	1.75	66.2	76.0	80.5	85.1	93.1	99.3	104	107	110	120
12-MP-130	1.67	48.9	59.6	67.1	1.75	71.7	82.3	87.2	92.2	101	108	113	117	120	130
12-MP-150	1.67	55.7	67.9	76.4	1.75	81.7	93.7	99.3	105	115	122	128	134	135	148
12-MP-160	1.67	62.1	75.7	85.1	1.75	91.0	104	111	117	128	137	143	146	150	165
12-MP-175	1.67	66.2	80.7	90.8	1.75	97.1	111	118	125	136	146	153	156	160	176
12-MP-200	1.67	75.2	91.7	103	1.75	110	127	134	142	155	166	174	178	180	200
12-MP-220	1.67	82.7	101	114	1.75	121	139	148	156	171	182	191	196	200	220
12-MP-250	1.67	94.0	115	129	1.75	138	158	168	177	194	207	217	227	230	250
12-MP-275	1.67	102	124	139	1.75	149	171	181	192	209	223	234	245	250	270

Current

Amps at 25°C

SEC bloc 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	20hr
6-MP-1.3	1.67	2.33	1.32	0.92	1.75	0.79	0.58	0.44	0.32	0.26	0.22	0.19	0.14	0.12	0.07
6-MP-3.2	1.67	5.92	3.34	2.34	1.75	2.00	1.48	1.13	0.82	0.66	0.56	0.47	0.36	0.31	0.17
6-MP-4.5	1.67	8.08	4.55	3.19	1.75	2.72	2.02	1.54	1.12	0.90	0.76	0.64	0.49	0.42	0.23
6-MP-4.5-SP	1.67	8.44	4.76	3.33	1.75	2.85	2.11	1.61	1.17	0.94	0.80	0.67	0.52	0.43	0.24
6-MP-7.0	1.67	12.6	7.08	4.97	1.75	4.24	3.14	2.39	1.74	1.39	1.19	1.00	0.77	0.68	0.35
6-MP-7.2	1.67	12.9	7.3	5.11	1.75	4.36	3.23	2.46	1.79	1.43	1.22	1.03	0.79	0.70	0.36
6-MP-7.5	1.67	13.5	7.6	5.32	1.75	4.54	3.37	2.56	1.86	1.49	1.27	1.07	0.82	0.72	0.38
6-MP-10	1.67	18.3	10.3	7.18	1.75	6.12	4.53	3.45	2.50	2.00	1.70	1.43	1.10	0.95	0.50
6-MP-12	1.67	21.5	12.1	8.51	1.75	7.27	5.39	4.10	2.98	2.39	2.03	1.71	1.32	1.10	0.60
6-MP-130	1.67	193	117	88.1	1.75	70.6	54.0	42.9	30.3	24.8	21.2	18.5	14.5	11.7	6.40
6-MP-200	1.67	289	176	132	1.75	106	81.0	64.4	45.4	37.2	31.8	27.8	21.8	17.5	9.60
6-MP-220	1.67	322	196	147	1.75	118	90.3	71.8	50.6	41.5	35.4	31.0	24.3	19.5	10.7

Current

Amps at 25°C

SEC bloc 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	20hr
6-MP-230	1.67	337	205	154	1.75	124	94.5	75.1	53.0	43.4	37.1	32.4	25.4	20.5	11.2
12-MP-1.2*	1.67	2.15	1.36	1.03	1.75	0.78	0.60	0.47	0.34	0.27	0.22	0.19	0.15	0.12	0.07
12-MP-1.3	1.67	2.33	1.32	0.92	1.75	0.79	0.58	0.44	0.32	0.26	0.22	0.19	0.14	0.12	0.07
12-MP-2.2	1.67	3.95	2.23	1.56	1.75	1.33	0.99	0.75	0.55	0.44	0.37	0.31	0.24	0.20	0.11
12-MP-2.3*	1.67	3.44	2.18	1.65	1.75	1.25	0.97	0.77	0.55	0.45	0.37	0.32	0.24	0.20	0.11
12-MP-3.3	1.67	5.92	3.34	2.34	1.75	2.00	1.48	1.13	0.82	0.66	0.56	0.47	0.36	0.30	0.17
12-MP-4.5*	1.67	7.29	4.61	3.50	1.75	2.65	2.05	1.58	1.13	0.92	0.77	0.66	0.51	0.42	0.23
12-MP-5.0	1.67	8.97	5.06	3.55	1.75	3.03	2.24	1.71	1.24	1.00	0.85	0.71	0.55	0.48	0.25
12-MP-5.0-SP	1.67	8.97	5.06	3.55	1.75	3.03	2.24	1.71	1.24	1.00	0.85	0.71	0.55	0.48	0.25
12-MP-6.0	1.67	10.77	6.07	4.26	1.75	3.63	2.69	2.05	1.49	1.20	1.02	0.86	0.66	0.57	0.30
12-MP-7.0*	1.67	11.1	7.04	5.34	1.75	4.04	3.13	2.45	1.76	1.44	1.20	1.03	0.80	0.67	0.35
12-MP-7.2	1.67	12.9	7.28	5.11	1.75	4.36	3.23	2.46	1.79	1.43	1.22	1.03	0.79	0.68	0.36
12-MP-7.5	1.67	13.5	7.59	5.32	1.75	4.54	3.37	2.56	1.86	1.49	1.27	1.07	0.82	0.72	0.38
12-MP-8.0	1.67	14.4	8.09	5.68	1.75	4.84	3.59	2.74	1.99	1.59	1.36	1.14	0.88	0.75	0.40
12-MP-9.0	1.67	16.2	9.11	6.38	1.75	5.45	4.04	3.08	2.24	1.79	1.53	1.28	0.99	0.85	0.45
12-MP-12*	1.67	19.3	12.2	9.24	1.75	7.00	5.41	4.23	3.03	2.53	2.10	1.81	1.33	1.10	0.60
12-MP-14	1.67	25.1	14.2	9.9	1.75	8.48	6.29	4.79	3.48	2.79	2.37	2.00	1.54	1.30	0.70
12-MP-18*	1.67	27.2	17.2	13.1	1.75	9.90	7.66	6.28	4.50	3.69	3.06	2.63	2.06	1.70	0.90
12-MP-20	1.67	35.9	20.2	14.2	1.75	12.1	8.98	6.84	4.97	3.98	3.39	2.85	2.20	1.85	1.00
12-MP-24-A	1.67	43.1	24.3	17.0	1.75	14.5	10.8	8.21	5.96	4.78	4.07	3.43	2.64	2.23	1.20
12-MP-24-B	1.67	43.1	24.3	17.0	1.75	14.5	10.8	8.21	5.96	4.78	4.07	3.43	2.64	2.25	1.20
12-MP-26-A	1.67	46.7	26.3	18.4	1.75	15.7	11.7	8.89	6.46	5.18	4.41	3.71	2.86	2.40	1.30
12-MP-26-B	1.67	46.7	26.3	18.4	1.75	15.7	11.7	8.89	6.46	5.18	4.41	3.71	2.86	2.40	1.30
12-MP-26*	1.67	39.2	24.8	18.8	1.75	14.3	11.0	8.91	6.40	5.24	4.35	3.75	2.90	2.40	1.30
12-MP-28	1.67	50.3	28.3	19.9	1.75	17.0	12.6	9.58	6.96	5.58	4.75	4.00	3.08	2.60	1.40

Current

Amps at 25°C

SEC bloc 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	20hr
12-MP-35	1.67	52.7	32.1	24.1	1.75	19.3	14.8	11.7	8.28	6.79	5.79	5.06	3.97	3.20	1.75
12-MP-40*	1.67	60.2	36.7	27.5	1.75	22.1	16.9	13.4	9.46	7.76	6.62	5.79	4.54	3.80	2.00
12-MP-44	1.67	69.2	42.2	31.6	1.75	25.4	19.4	15.4	10.9	8.92	7.61	6.66	5.22	4.40	2.30
12-MP-45*	1.67	66.6	42.1	31.9	1.75	24.2	18.7	16.3	11.7	9.53	7.90	6.81	5.34	4.40	2.30
12-MP-55	1.67	87.3	53.2	39.9	1.75	32.0	24.5	19.5	13.7	11.2	9.60	8.39	6.58	5.50	2.90
12-MP-65*	1.67	105	66.1	50.2	1.75	38.0	29.4	23.3	16.7	13.8	11.4	9.83	7.88	6.50	3.40
12-MP-70	1.67	102	62.4	46.8	1.75	37.5	28.7	22.8	16.1	13.2	11.3	9.84	7.72	6.50	3.40
12-MP-80	1.67	110	67.0	50.2	1.75	40.3	30.8	24.5	17.3	14.2	12.1	10.6	8.28	7.00	3.65
12-MP-90	1.67	128	78.0	58.5	1.75	46.9	35.9	28.5	20.1	16.5	14.1	12.3	9.65	8.00	4.25
12-MP-100	1.67	150	91.7	68.8	1.75	55.2	42.2	33.5	23.6	19.4	16.6	14.5	11.0	9.00	5.00
12-MP-110	1.67	165	101	75.7	1.75	60.7	46.4	36.9	26.0	21.3	18.2	15.9	12.0	10.0	5.50
12-MP-120	1.67	181	110	82.6	1.75	66.2	50.6	40.2	28.4	23.3	19.9	17.4	13.4	11.0	6.00
12-MP-130	1.67	196	119	89.4	1.75	71.7	54.9	43.6	30.7	25.2	21.5	18.8	14.6	12.0	6.50
12-MP-150	1.67	223	136	101.8	1.75	81.7	62.5	49.6	35.0	28.7	24.5	21.4	16.8	13.5	7.40
12-MP-160	1.67	248	151	114	1.75	91.0	69.6	55.3	39.0	32.0	27.3	23.9	18.2	15.0	8.25
12-MP-175	1.67	265	161	121	1.75	97.1	74.3	59.0	41.6	34.1	29.1	25.5	19.5	16.0	8.80
12-MP-200	1.67	301	183	138	1.75	110	84.4	67.1	47.3	38.8	33.1	28.9	22.2	18.0	10.0
12-MP-220	1.67	331	202	151	1.75	121	92.8	73.8	52.0	42.7	36.4	31.8	24.5	20.0	11.0
12-MP-250	1.67	376	229	172	1.75	138	105.5	83.8	59.1	48.5	41.4	36.2	28.4	23.0	12.5
12-MP-275	1.67	406	248	186	1.75	149	114	90.5	63.8	52.3	44.7	39.1	30.6	25.0	13.5

Power

Watts at 25°C

SEC bloc 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	20hr
6-MP-1.3	1.67	4.08	2.37	1.69	1.75	1.47	1.10	0.84	0.62	0.50	0.43	0.36	0.28	0.24	0.13
6-MP-3.2	1.67	10.4	6.01	4.28	1.75	3.73	2.79	2.14	1.57	1.27	1.09	0.92	0.71	0.61	0.33

Power

Watts/cell at 25°C

SEC bloc 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	20hr
6-MP-4.5	1.67	14.1	8.20	5.84	1.75	5.08	3.81	2.92	2.14	1.73	1.48	1.25	0.97	0.83	0.44
6-MP-4.5-SP	1.67	14.8	8.56	6.10	1.75	5.31	3.98	3.05	2.24	1.81	1.55	1.31	1.01	0.85	0.46
6-MP-7.0	1.67	22.0	12.7	9.09	1.75	7.91	5.92	4.54	3.34	2.69	2.30	1.95	1.51	1.34	0.69
6-MP-7.2	1.67	22.6	13.1	9.35	1.75	8.13	6.09	4.67	3.43	2.77	2.37	2.00	1.55	1.37	0.71
6-MP-7.5	1.67	23.6	13.7	9.74	1.75	8.47	6.35	4.87	3.57	2.89	2.47	2.09	1.62	1.42	0.74
6-MP-10	1.67	32.1	18.5	13.1	1.75	11.4	8.54	6.54	4.80	3.86	3.30	2.79	2.16	1.87	0.99
6-MP-12	1.67	37.7	21.9	15.6	1.75	13.6	10.2	7.79	5.72	4.62	3.95	3.34	2.58	2.17	1.18
6-MP-130	1.67	337	211	161	1.75	132	102	81.5	58.0	47.9	41.1	36.1	28.5	23.1	12.6
6-MP-200	1.67	505	317	242	1.75	198	153	122	87.1	71.9	61.7	54.1	42.7	34.5	18.9
6-MP-220	1.67	563	353	269	1.75	220	170	136	97.0	80.2	68.8	60.4	47.6	38.5	21.1
6-MP-230	1.67	590	370	282	1.75	231	178	143	102	83.9	72.0	63.2	49.8	40.4	22.1
12-MP-1.2*	1.67	3.76	2.45	1.88	1.75	1.45	1.13	0.89	0.65	0.51	0.43	0.37	0.28	0.24	0.13
12-MP-1.3	1.67	4.08	2.37	1.69	1.75	1.47	1.10	0.84	0.62	0.50	0.43	0.36	0.28	0.24	0.13
12-MP-2.2	1.67	6.91	4.01	2.86	1.75	2.48	1.86	1.43	1.05	0.85	0.72	0.61	0.47	0.39	0.22
12-MP-2.3*	1.67	6.02	3.92	3.02	1.75	2.33	1.82	1.45	1.05	0.86	0.72	0.62	0.47	0.39	0.22
12-MP-3.3	1.67	10.4	6.01	4.28	1.75	3.73	2.79	2.14	1.57	1.27	1.09	0.92	0.71	0.59	0.33
12-MP-4.5*	1.67	12.8	8.30	6.41	1.75	4.94	3.86	3.00	2.17	1.78	1.49	1.29	1.00	0.83	0.44
12-MP-5.0	1.67	15.7	9.11	6.49	1.75	5.65	4.23	3.25	2.38	1.92	1.65	1.39	1.08	0.95	0.49
12-MP-5.0-SP	1.67	15.7	9.11	6.49	1.75	5.65	4.23	3.25	2.38	1.92	1.65	1.39	1.08	0.95	0.49
12-MP-6.0	1.67	18.8	10.9	7.79	1.75	6.78	5.08	3.89	2.86	2.31	1.97	1.67	1.29	1.12	0.59
12-MP-7.0*	1.67	19.5	12.7	9.77	1.75	7.54	5.89	4.65	3.37	2.79	2.32	2.01	1.58	1.31	0.69
12-MP-7.2	1.67	22.6	13.1	9.35	1.75	8.13	6.09	4.67	3.43	2.77	2.37	2.00	1.55	1.34	0.71
12-MP-7.5	1.67	23.6	13.7	9.74	1.75	8.47	6.35	4.87	3.57	2.89	2.47	2.09	1.62	1.42	0.74
12-MP-8.0	1.67	25.1	14.6	10.4	1.75	9.03	6.77	5.19	3.81	3.08	2.63	2.23	1.72	1.48	0.79
12-MP-9.0	1.67	28.3	16.4	11.7	1.75	10.2	7.62	5.84	4.29	3.46	2.96	2.50	1.94	1.68	0.89
12-MP-12*	1.67	33.8	22.0	16.9	1.75	13.1	10.2	8.03	5.81	4.88	4.08	3.53	2.61	2.16	1.18
12-MP-14	1.67	44.0	25.5	18.2	1.75	15.8	11.8	9.09	6.67	5.39	4.61	3.89	3.02	2.56	1.38
12-MP-18*	1.67	47.6	31.0	24.0	1.75	18.5	14.4	11.9	8.63	7.13	5.94	5.13	4.04	3.35	1.78

Power

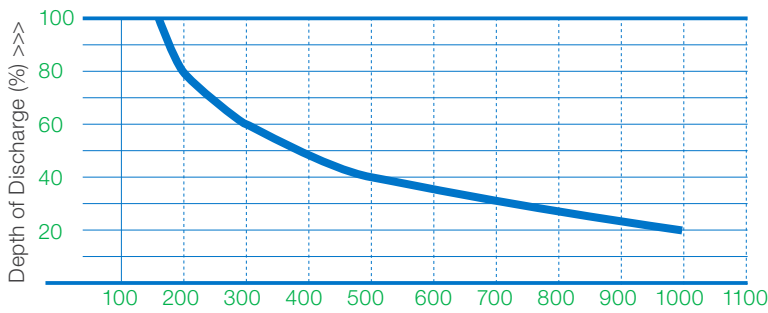
Watts/cell at 25°C

SEC bloc 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	20hr
12-MP-20	1.67	62.8	36.4	26.0	1.75	22.6	16.9	13.0	9.53	7.70	6.58	5.56	4.31	3.65	1.97
12-MP-24-A	1.67	75.4	43.7	31.2	1.75	27.1	20.3	15.6	11.4	9.24	7.90	6.68	5.17	4.40	2.37
12-MP-24-B	1.67	75.4	43.7	31.2	1.75	27.1	20.3	15.6	11.4	9.24	7.90	6.68	5.17	4.44	2.37
12-MP-26-A	1.67	81.7	47.3	33.8	1.75	29.4	22.0	16.9	12.4	10.0	8.56	7.23	5.60	4.74	2.57
12-MP-26-B	1.67	81.7	47.3	33.8	1.75	29.4	22.0	16.9	12.4	10.0	8.56	7.23	5.60	4.73	2.57
12-MP-26*	1.67	68.6	44.7	34.5	1.75	26.6	20.8	16.9	12.3	10.1	8.45	7.31	5.69	4.72	2.56
12-MP-28	1.67	88.0	51.0	36.4	1.75	31.6	23.7	18.2	13.3	10.8	9.22	7.79	6.03	5.13	2.76
12-MP-35	1.67	92.1	57.8	44.1	1.75	36.0	27.8	22.3	15.9	13.1	11.3	9.87	7.79	6.31	3.45
12-MP-40*	1.67	106	68.9	53.1	1.75	41.0	32.1	25.6	18.5	15.4	12.8	11.1	9.04	7.48	3.95
12-MP-44	1.67	121	76.0	57.9	1.75	47.3	36.6	29.3	20.9	17.2	14.8	13.0	10.2	8.68	4.54
12-MP-45*	1.67	117	75.8	58.4	1.75	45.1	35.3	30.9	22.4	18.4	15.3	13.3	10.5	8.66	4.54
12-MP-55	1.67	153	95.8	73.0	1.75	59.7	46.1	36.9	26.3	21.7	18.6	16.4	12.9	10.9	5.72
12-MP-65*	1.67	184	119	91.9	1.75	70.9	55.4	44.1	32.0	26.6	22.1	19.2	15.4	12.8	6.71
12-MP-70	1.67	179	112	85.6	1.75	70.0	54.1	43.3	30.8	25.5	21.9	19.2	15.1	12.8	6.71
12-MP-80	1.67	192	121	91.9	1.75	75.1	58.1	46.5	33.1	27.3	23.5	20.6	16.2	13.8	7.20
12-MP-90	1.67	224	140	107	1.75	87.5	67.6	54.1	38.5	31.8	27.3	24.0	18.9	15.8	8.39
12-MP-100	1.67	263	165	126	1.75	103	79.5	63.7	45.3	37.5	32.1	28.2	21.6	17.8	9.87
12-MP-110	1.67	290	182	139	1.75	113	87.5	70.0	49.9	41.2	35.4	31.0	23.5	19.7	10.9
12-MP-120	1.67	316	198	151	1.75	123	95.5	76.4	54.4	44.9	38.6	33.8	26.3	21.7	11.8
12-MP-130	1.67	342	215	164	1.75	134	103	82.7	59.0	48.7	41.8	36.7	28.6	23.7	12.8
12-MP-150	1.67	390	244	186	1.75	152	118	94.2	67.1	55.4	47.6	41.7	32.9	26.6	14.6
12-MP-160	1.67	434	272	208	1.75	170	131	105	74.8	61.8	53.0	46.5	35.7	29.6	16.3
12-MP-175	1.67	463	291	222	1.75	181	140	112	79.8	65.9	56.6	49.6	38.2	31.6	17.4
12-MP-200	1.67	527	330	252	1.75	206	159	127	90.7	74.9	64.3	56.4	43.5	35.5	19.7
12-MP-220	1.67	579	363	277	1.75	226	175	140	99.8	82.4	70.7	62.0	48.0	39.5	21.7
12-MP-250	1.67	658	413	315	1.75	257	199	159	113	93.6	80.4	70.5	55.6	45.4	24.7
12-MP-275	1.67	711	446	340	1.75	278	215	172	122	101.1	86.8	76.1	60.1	49.3	26.6

Cycle life

Relationship between depth of discharge and cycle life

Ambient temperature 25°C



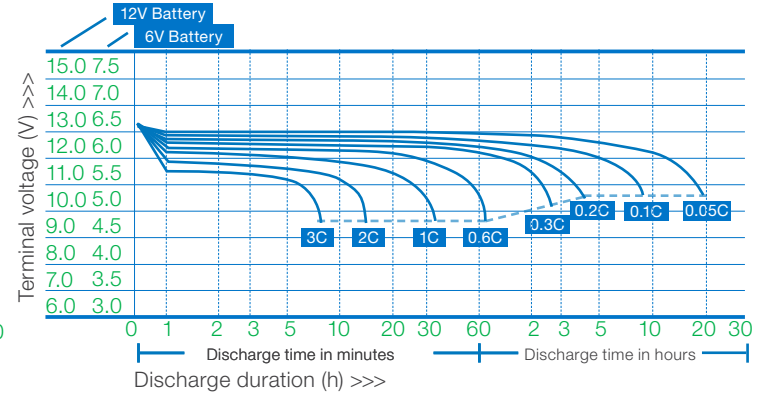
Cycle life >>>

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

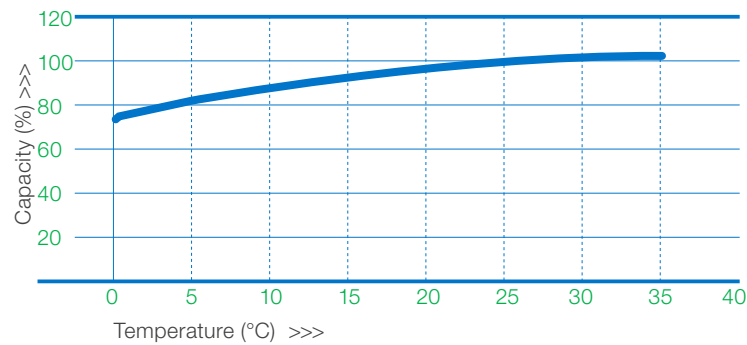
Ambient temperature 25°C



Effect of discharge rate on battery capacity.

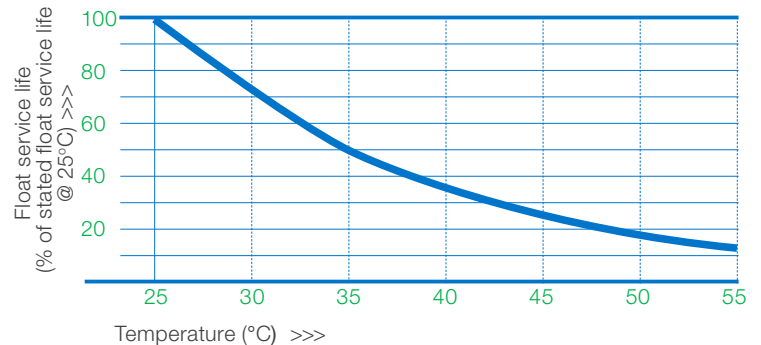
Effect of inclined temperature

Effect of temperature on capacity at C/10 discharge rate



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

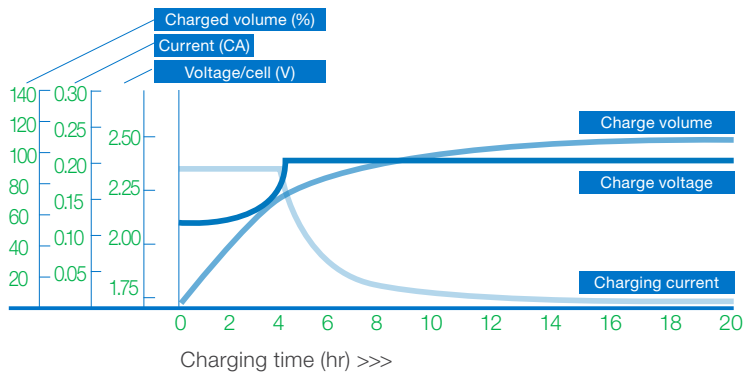
Float service life VS temperature



Effect of temperature on float service life.

Charge method

Constant current/voltage charge characteristics



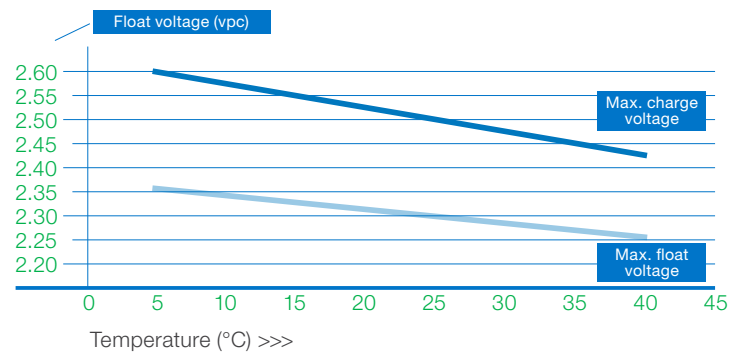
The preferred charging procedure should be in accordance with DIN 41773, constant current/constant voltage (IU characteristics). Constant float charging utilising a constant voltage charger is also acceptable.

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

Equalising or fast charging can occasionally be permitted in which the charging voltage is $2.50V \times \text{number of cells}$ 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 charging voltage of $2.30V \pm 1\% \times \text{number of cells}$ should follow after this period.

Charge compensation

Temperature compensation for float voltage



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