



The CELLYTE ETGB Series

12V tubular plate Gel
OPzV battery

**Designed for deep
discharge and
longterm service**

FITTED
WITH



CELLYTE ETGB



Specification

Positive electrode:	Tubular plate with special Lead Calcium Tin alloy
Negative electrode:	Lead Calcium grid flat plate
Float charge voltage:	2.25 - 2.30 vpc \pm 1% at 25°C
Cyclic charge voltage:	2.35 - 2.40vpc \pm 1% at 25°C
Electrolyte:	Highly pure thixotropic gel electrolyte
Safety valve:	1-3 PSI self-resealing
Separators:	PVC leaf separator
Terminals:	Integral brass insert for M-bolt
Catalyst:	Performance enhancing catalyst as standard
Capacity:	12V 20Ah - 12V 200Ah at C/10 to 1.80vpc @ 25°C

Product information

The latest OPzV Monobloc

The CELLYTE 12 volt ETGB Gel Series is the latest addition to our renewables series and is based on our industry leading 2V ETG cell range. It's a German DIN standard OPzV monobloc offering ultra-long life, deep cycling capability and a low rate of self-discharge.

Engineered using SEC's proprietary manufacturing standards, the ETGB combines world-class materials with the latest technology to exceed European standards. It is ideally suited to high ambient temperature operating conditions and provides long life return on investment.

A range of market leading technology

The ETGB is fitted with SEC's market-leading CatVent™ catalyst technology. This recombines the Hydrogen and Oxygen gases during the charging cycle and allows for use in higher temperatures while providing an increased service life.

The tubular plate design is the most advanced in the market. It uses antimony-free Alloy to give you a rugged and reliable workhorse that will tolerate low temperatures and accept high charge rates.

Product features

- Deep cycle capability
- Tolerant to freezing temperatures
- Latest tubular plate formation technology
- Accepts high charge rate
- Never requires additional water
- Spill-proof and leak-proof
- Explosion-proof vents as standard
- Low self-discharge
- Long life provides exceptional value
- Fitted with CatVent™ catalyst

Design life

Float life: 20 years in float service @ 30°C with an approved catalyst

Cycles: 1800 cycles @ 80% DOD

Product Compliance

IEC 60896-21/22-2004
BS 6290 part 4
DIN 40742-1999
UL Component Approval
Eurobat

Company Accreditation

ISO 9001:2015
ISO 14001:2004

Increased safety and extra long design life

The ETGB allows zero gas escape during standard charge; these units are explosion-proof without external ventilation. This increased safety is ideal in solar, telecommunications, control systems, UPS and many more critical applications.

With a 20-year design life in float applications, the CELLYTE 12 ETGB Gel Series is great news for users who need reliable quality, the latest gel chemistry, and value for money. Whether you need them for large-scale energy generation and distribution or require a more localised, smaller solution, the ETGB is the ideal monobloc for the job.

Manufactured with international components

SEC sources a range of proprietary components from international leaders. Our patented valves and bespoke cut separator are built in Germany. The market leading triple post seals are Japanese and the SEC CatVent™ catalyst is made in America.

“With increased life and reliability, rugged deep discharge capability and maintenance-free operation, the ETGB provides the ideal solution for demanding, abusive applications.”

Dr Mike McDonagh
SEC Group

Product benefits

Extended lifetime

The Catvent™ technology reduces self discharge and plate corrosion so the battery will last longer. It has a calendar life of over 20 years in stationary applications and a long shelf life in the right conditions.

Absolute reliability under harsh conditions

Shock resistant and suited to higher temperature environments. Designed to operate at 30°C it will withstand a temperature range between – 40°C to + 50°C. It tolerates sub-zero temperature and has extended lifetime while stationary cycling at high temperatures > 30°C.

Maintenance free

Designed for deep discharge, the ETGB is a hardy battery that's ideally suited to renewable energy applications. Its construction and gelled electrolyte means the ETGB does not require water, making it maintenance-free. This unit offers peace of mind for busy operators in a range of applications.

High energy rating

The latest tubular plate formation technology means the battery will perform for longer in a variety of applications. The low resistance Lead Alloy combined with other European components enables faster recharging with minimal heat generation.

Increased safety

The ETGB is spill-proof and leak-proof and features explosion-proof vents as standard. This means no risk of accidental fire and less chance of tracking between units which could cause low performance issues.

Quick charging

The ETGB has extremely low internal resistance, allowing quick recharge and operation at cooler temperatures. This makes it more efficient when your application demands a quick charge/ recharge turnaround. The ETGB is perfect for highly reliable, maintenance free operation in remote applications.

Applications



Deep cycle



Cellular radio



Control system



Solar



Switchgear



Energy storage



Navigation aids



Renewables



Oil and gas



Motive

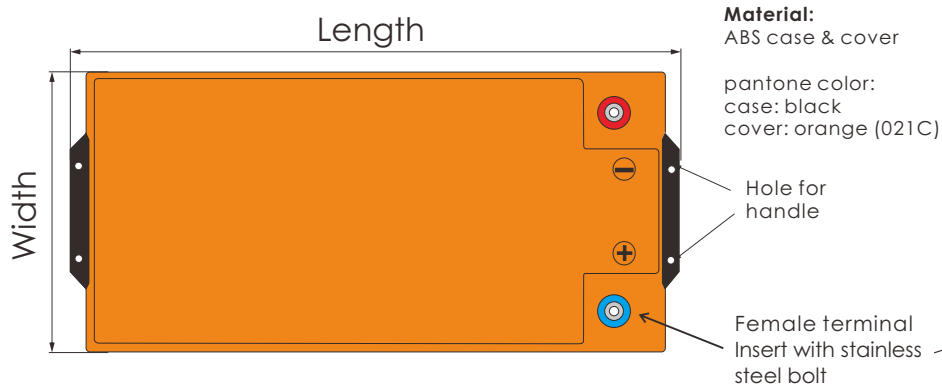


Portable

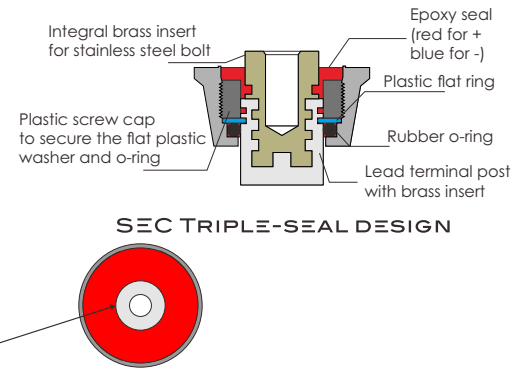


Telecommunications

Monobloc outline

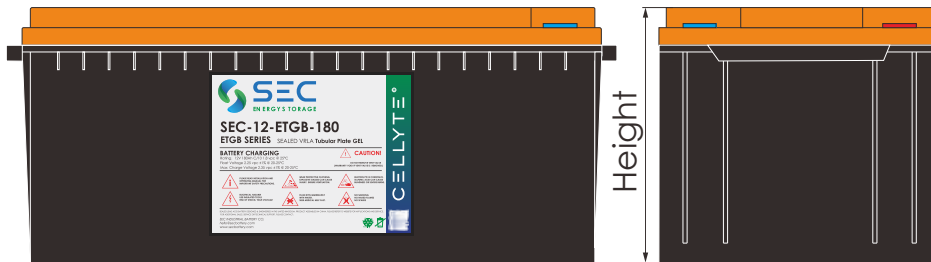


Triple post seal detail



Female terminal type

Female Terminal type	Description
FT3	14mm ø brass insert terminal for M6 bolt
FT5	16mm ø brass insert terminal for M8 bolt



Battery dimensions

Dimensions/ Weights/ Data

SEC model type	Nominal capacity C/10 1.80 vpc	Battery weight		Overall battery dimension								Internal resistance (mΩ)	Maximum charge current (A)	Maximum discharge current in 5s (A)	Short circuit current (A)	Terminal post type
				Length		Width		Height		Total Height						
				kg	lbs	mm	Inch	mm	Inch	mm	Inch					
12-ETGB-20	20	12.5	28	197	7.8	165	6.50	170	6.7	170	6.7	21.5	4.0	125	1500	FT3
12-ETGB-30	30	16.5	36.4	260	10.2	169	6.65	208	8.19	227	8.94	25.5	6.0	185	1700	FT3
12-ETGB-40	40	20.5	45.2	260	10.2	169	6.65	208	8.19	227	8.94	16.5	8.0	245	1800	FT3
12-ETGB-50	50	21.0	46.3	260	10.2	169	6.65	208	8.19	227	8.94	16.0	10.0	315	1900	FT3
12-ETGB-60	60	22.0	48.5	260	10.2	169	6.65	208	8.19	227	8.94	12.5	12.0	380	2000	FT3
12-ETGB-80	80	28.0	61.7	331	13.0	176	6.93	225	8.86	225	8.86	7.80	16.0	500	2400	FT3
12-ETGB-100	100	35.0	77.2	409	16.1	176	6.93	225	8.86	227	8.94	6.30	20.0	625	2900	FT5
12-ETGB-120	120	45.0	99.2	483	19.0	170	6.69	240	9.45	240	9.45	7.40	24.0	750	3300	FT5
12-ETGB-140	140	56.0	124	532	20.9	207	8.15	209	8.23	240	9.45	5.20	28.0	875	4200	FT5
12-ETGB-160	160	61.0	134	522	20.6	240	9.45	222	8.74	225	8.86	5.30	32.0	1000	4500	FT5
12-ETGB-180	180	64.0	141	522	20.6	240	9.45	222	8.74	225	8.86	2.00	36.0	1130	4700	FT5
12-ETGB-200	200	71.5	158	522	20.6	269	10.6	222	8.74	245	9.65	2.30	40.0	1250	5400	FT5

* 12-ETGB-20 and 12-ETGB-100 are not fitted with catalyst.

Capacity

Amperes at 25°C

SEC bloc type	Discharge data ampere hour at 25°C														
	End volts/ Cell	Discharge time in minutes						Discharge time in hours							
		15min	30min	45min	1hr	2hr	3hr	4hr	5hr	6hr	8hr	10hr	20hr	24hr	
12-ETGB-20	1.60	5.30	8.30	10.2	10.6	13.7	15.2	17.1	18.2	18.6	18.8	20.4	21.6	22.3	
	1.65	5.17	8.13	10.0	10.5	13.6	15.1	17.0	18.0	18.5	18.7	20.3	21.5	22.3	
	1.70	4.98	7.89	9.69	10.2	13.5	15.0	16.8	17.9	18.4	18.5	20.3	21.5	22.1	
	1.75	4.81	7.69	9.46	10.0	13.3	14.9	16.7	17.8	18.2	18.4	20.1	21.3	22.1	
	1.80	4.56	7.41	9.11	9.69	13.0	14.4	16.2	17.3	17.7	17.8	20.0	21.2	22.0	
	1.85	4.40	7.15	8.79	9.37	12.7	14.1	15.8	16.8	17.2	17.4	19.7	20.8	21.5	
12-ETGB-30	1.60	7.95	12.5	15.3	15.9	20.6	22.8	25.6	27.2	27.9	28.2	30.5	32.4	33.5	
	1.65	7.76	12.2	15.0	15.7	20.5	22.6	25.4	27.1	27.7	28.0	30.5	32.3	33.4	
	1.70	7.47	11.8	14.5	15.3	20.3	22.5	25.3	26.9	27.6	27.8	30.4	32.2	33.2	
	1.75	7.22	11.5	14.2	15.0	20.0	22.3	25.1	26.7	27.4	27.6	30.2	32.0	33.1	
	1.80	6.84	11.1	13.7	14.5	19.5	21.7	24.3	25.9	26.5	26.8	30.0	31.8	33.0	
	1.85	6.60	10.7	13.2	14.1	19.1	21.1	23.7	25.2	25.9	26.1	29.6	31.3	32.2	
12-ETGB-40	1.60	10.6	16.6	20.4	21.2	27.4	30.4	34.1	36.3	37.2	37.5	40.7	43.2	44.6	
	1.65	10.3	16.3	20.0	20.9	27.3	30.2	33.9	36.1	37.0	37.3	40.6	43.1	44.5	
	1.70	10.0	15.8	19.4	20.4	27.0	30.0	33.7	35.8	36.7	37.1	40.5	43.0	44.2	
	1.75	9.62	15.4	18.9	20.0	26.6	29.8	33.4	35.6	36.5	36.8	40.2	42.7	44.1	
	1.80	9.12	14.8	18.2	19.4	26.0	28.9	32.4	34.5	35.4	35.7	40.0	42.4	44.0	
	1.85	8.80	14.3	17.6	18.7	25.4	28.1	31.6	33.6	34.5	34.8	39.4	41.7	42.9	
12-ETGB-50	1.60	13.3	20.8	25.5	26.6	34.3	37.9	42.6	45.4	46.5	46.9	50.9	54.0	55.8	
	1.65	12.9	20.3	25.0	26.2	34.1	37.7	42.4	45.1	46.2	46.6	50.8	53.8	55.7	
	1.70	12.5	19.7	24.2	25.5	33.8	37.5	42.1	44.8	45.9	46.3	50.7	53.7	55.3	
	1.75	12.0	19.2	23.6	25.0	33.3	37.2	41.8	44.5	45.6	46.0	50.3	53.4	55.2	
	1.80	11.4	18.5	22.8	24.2	32.4	36.1	40.5	43.2	44.2	44.6	50.0	53.0	55.0	
	1.85	11.0	17.9	22.0	23.4	31.8	35.2	39.5	42.1	43.1	43.5	49.3	52.1	53.6	
12-ETGB-60	1.60	15.9	24.9	30.6	31.9	41.2	45.5	51.2	54.5	55.8	56.3	61.1	64.7	66.9	
	1.65	15.5	24.4	30.0	31.4	40.9	45.3	50.9	54.1	55.5	56.0	61.0	64.6	66.8	
	1.70	14.9	23.7	29.1	30.6	40.6	45.0	50.5	53.8	55.1	55.6	60.8	64.4	66.3	
	1.75	14.4	23.1	28.4	30.0	40.0	44.6	50.2	53.4	54.7	55.2	60.3	64.0	66.2	
	1.80	13.7	22.2	27.3	29.1	38.9	43.3	48.7	51.8	53.1	53.5	60.0	63.6	66.0	
	1.85	13.2	21.5	26.4	28.1	38.1	42.2	47.4	50.5	51.7	52.2	59.2	62.5	64.4	
12-ETGB-80	1.60	21.2	33.2	40.8	42.5	54.9	60.7	68.2	72.6	74.4	75.1	81.4	86.3	89.3	
	1.65	20.7	32.5	40.0	41.8	54.6	60.4	67.8	72.2	74.0	74.6	81.3	86.2	89.1	
	1.70	19.9	31.5	38.8	40.8	54.1	59.9	67.3	71.7	73.5	74.1	81.0	85.9	88.5	
	1.75	19.2	30.8	37.8	40.0	53.3	59.5	66.9	71.2	73.0	73.6	80.4	85.4	88.3	
	1.80	18.2	29.6	36.4	38.7	51.9	57.7	64.9	69.1	70.8	71.4	80.0	84.8	87.9	
	1.85	17.6	28.6	35.2	37.5	50.8	56.2	63.2	67.3	68.9	69.6	78.9	83.4	85.8	
12-ETGB-100	1.60	26.5	41.5	51.0	53.1	68.6	75.9	85.3	90.8	93.0	93.8	102	108	112	
	1.65	25.9	40.7	50.0	52.3	68.2	75.4	84.8	90.2	92.5	93.3	102	108	111	
	1.70	24.9	39.4	48.5	51.0	67.6	74.9	84.2	89.6	91.8	92.6	101	107	111	
	1.75	24.1	38.5	47.3	50.0	66.6	74.4	83.6	89.0	91.2	92.0	101	107	110	
	1.80	22.8	37.1	45.5	48.4	64.9	72.2	81.1	86.3	88.5	89.2	100	106	110	
	1.85	22.0	35.8	44.0	46.8	63.5	70.3	79.0	84.1	86.2	86.9	98.6	104	107	
12-ETGB-120	1.60	31.8	49.8	61.2	63.7	82.3	91.1	102	109	112	113	122	129	134	
	1.65	31.0	48.8	60.0	62.8	81.9	90.5	102	108	111	112	122	129	134	
	1.70	29.9	47.3	58.1	61.2	81.1	89.9	101	108	110	111	122	129	133	
	1.75	28.9	46.2	56.7	60.0	79.9	89.3	100	107	109	110	121	128	132	
	1.80	27.3	44.5	54.7	58.1	77.9	86.6	97.3	104	106	107	120	127	132	
	1.85	26.4	42.9	52.8	56.2	76.3	84.4	94.8	101	103	104	118	125	129	

Capacity

Amperes at 25°C

SEC bloc type	Discharge data ampere hour at 25°C													
	End volts/ Cell	Discharge time in minutes						Discharge time in hours						
		15min	30min	45min	1hr	2hr	3hr	4hr	5hr	6hr	8hr	10hr	20hr	24hr
12-ETGB-140	1.60	37.1	58.1	71.4	74.3	96.1	106	119	127	130	131	143	151	156
	1.65	36.2	56.9	70.0	73.2	95.5	106	119	126	129	131	142	151	156
	1.70	34.9	55.2	67.8	71.4	94.6	105	118	125	129	130	142	150	155
	1.75	33.7	53.9	66.2	70.0	93.2	104	117	125	128	129	141	149	155
	1.80	31.9	51.9	63.8	67.8	90.9	101	114	121	124	125	140	148	154
	1.85	30.8	50.1	61.5	65.6	89.0	98.4	111	118	121	122	138	146	150
12-ETGB-160	1.60	42.4	66.4	81.6	85.0	110	121	136	145	149	150	163	173	179
	1.65	41.4	65.1	80.0	83.7	109	121	136	144	148	149	163	172	178
	1.70	39.9	63.1	77.5	81.6	108	120	135	143	147	148	162	172	177
	1.75	38.5	61.6	75.6	79.9	107	119	134	142	146	147	161	171	177
	1.80	36.5	59.3	72.9	77.5	104	115	130	138	142	143	160	170	176
	1.85	35.2	57.2	70.3	74.9	102	112	126	135	138	139	158	167	172
12-ETGB-180	1.60	47.7	74.7	91.8	95.6	124	137	153	163	167	169	183	194	201
	1.65	46.6	73.2	90.0	94.1	123	136	153	162	166	168	183	194	200
	1.70	44.8	71.0	87.2	91.8	122	135	152	161	165	167	182	193	199
	1.75	43.3	69.2	85.1	89.9	120	134	150	160	164	166	181	192	199
	1.80	41.0	66.7	82.0	87.2	117	130	146	155	159	161	180	191	198
	1.85	39.6	64.4	79.1	84.3	114	127	142	151	155	156	177	188	193
12-ETGB-200	1.60	53.0	83.0	102	106	137	152	171	182	186	188	204	216	223
	1.65	51.7	81.3	100	105	136	151	170	180	185	187	203	215	223
	1.70	49.8	78.9	96.9	102	135	150	168	179	184	185	203	215	221
	1.75	48.1	76.9	94.6	100	133	149	167	178	182	184	201	213	221
	1.80	45.6	74.1	91.1	96.9	130	144	162	173	177	178	200	212	220
	1.85	44.0	71.5	87.9	93.7	127	141	158	168	172	174	197	208	215

Current

Amperes at 25°C

SEC bloc type	Discharge data amps at 25°C													
	End volts/ Cell	Discharge time in minutes						Discharge time in hours						
		15min	30min	45min	1hr	2hr	3hr	4hr	5hr	6hr	8hr	10hr	20hr	24hr
12-ETGB-20	1.60	21.2	16.6	13.6	10.6	6.86	5.06	4.26	3.63	3.10	2.35	2.04	1.08	0.93
	1.65	20.7	16.3	13.3	10.5	6.82	5.03	4.24	3.61	3.08	2.33	2.03	1.08	0.93
	1.70	19.9	15.8	12.9	10.2	6.76	4.99	4.21	3.58	3.06	2.32	2.03	1.07	0.92
	1.75	19.2	15.4	12.6	10.0	6.66	4.96	4.18	3.56	3.04	2.30	2.01	1.07	0.92
	1.80	18.2	14.8	12.1	9.69	6.49	4.81	4.05	3.45	2.95	2.23	2.00	1.06	0.92
	1.85	17.6	14.3	11.7	9.37	6.35	4.69	3.95	3.36	2.87	2.17	1.97	1.04	0.89
12-ETGB-30	1.60	31.8	24.9	20.4	15.9	10.3	7.59	6.40	5.45	4.65	3.52	3.05	1.62	1.39
	1.65	31.0	24.4	20.0	15.7	10.2	7.54	6.36	5.41	4.62	3.50	3.05	1.62	1.39
	1.70	29.9	23.7	19.4	15.3	10.1	7.49	6.31	5.38	4.59	3.47	3.04	1.61	1.38
	1.75	28.9	23.1	18.9	15.0	10.0	7.44	6.27	5.34	4.56	3.45	3.02	1.60	1.38
	1.80	27.3	22.2	18.2	14.5	9.73	7.22	6.08	5.18	4.42	3.35	3.00	1.59	1.37
	1.85	26.4	21.5	17.6	14.1	9.53	7.03	5.93	5.05	4.31	3.26	2.96	1.56	1.34
12-ETGB-40	1.60	42.4	33.2	27.2	21.2	13.7	10.1	8.53	7.26	6.20	4.69	4.07	2.16	1.86
	1.65	41.4	32.5	26.7	20.9	13.6	10.1	8.48	7.22	6.17	4.66	4.06	2.15	1.86
	1.70	39.9	31.5	25.8	20.4	13.5	9.99	8.42	7.17	6.12	4.63	4.05	2.15	1.84
	1.75	38.5	30.8	25.2	20.0	13.3	9.92	8.36	7.12	6.08	4.60	4.02	2.13	1.84
	1.80	36.5	29.6	24.3	19.4	13.0	9.62	8.11	6.91	5.90	4.46	4.00	2.12	1.83
	1.85	35.2	28.6	23.4	18.7	12.7	9.37	7.90	6.73	5.75	4.35	3.94	2.08	1.79

Current

Amperes at 25°C

SEC bloc type	Discharge data amps at 25°C														
	End volts/ Cell	Discharge time in minutes						Discharge time in hours							
		15min	30min	45min	1hr	2hr	3hr	4hr	5hr	6hr	8hr	10hr	20hr	24hr	
12-ETGB-50	1.60	53.0	41.5	34.0	26.6	17.2	12.6	10.7	9.08	7.75	5.87	5.09	2.70	2.32	
	1.65	51.7	40.7	33.3	26.2	17.1	12.6	10.6	9.02	7.71	5.83	5.08	2.69	2.32	
	1.70	49.8	39.4	32.3	25.5	16.9	12.5	10.5	8.96	7.65	5.79	5.07	2.68	2.30	
	1.75	48.1	38.5	31.5	25.0	16.6	12.4	10.5	8.90	7.60	5.75	5.03	2.67	2.30	
	1.80	45.6	37.1	30.4	24.2	16.2	12.0	10.1	8.63	7.37	5.58	5.00	2.65	2.29	
	1.85	44.0	35.8	29.3	23.4	15.9	11.7	9.88	8.41	7.18	5.43	4.93	2.60	2.23	
12-ETGB-60	1.60	63.6	49.8	40.8	31.9	20.6	15.2	12.8	10.9	9.30	7.04	6.11	3.24	2.79	
	1.65	62.1	48.8	40.0	31.4	20.5	15.1	12.7	10.8	9.25	7.00	6.10	3.23	2.78	
	1.70	59.8	47.3	38.8	30.6	20.3	15.0	12.6	10.8	9.18	6.95	6.08	3.22	2.76	
	1.75	57.7	46.2	37.8	30.0	20.0	14.9	12.5	10.7	9.12	6.90	6.03	3.20	2.76	
	1.80	54.7	44.5	36.4	29.1	19.5	14.4	12.2	10.4	8.85	6.69	6.00	3.18	2.75	
	1.85	52.8	42.9	35.2	28.1	19.1	14.1	11.9	10.1	8.62	6.52	5.92	3.13	2.68	
12-ETGB-80	1.60	84.8	66.4	54.4	42.5	27.4	20.2	17.1	14.5	12.4	9.38	8.14	4.32	3.72	
	1.65	82.8	65.1	53.3	41.8	27.3	20.1	17.0	14.4	12.3	9.33	8.13	4.31	3.71	
	1.70	79.7	63.1	51.7	40.8	27.0	20.0	16.8	14.3	12.2	9.26	8.10	4.30	3.69	
	1.75	77.0	61.6	50.4	40.0	26.6	19.8	16.7	14.2	12.2	9.20	8.04	4.27	3.68	
	1.80	72.9	59.3	48.6	38.7	26.0	19.2	16.2	13.8	11.8	8.92	8.00	4.24	3.66	
	1.85	70.4	57.2	46.9	37.5	25.4	18.7	15.8	13.5	11.5	8.69	7.89	4.17	3.58	
12-ETGB-100	1.60	106	83.0	68.0	53.1	34.3	25.3	21.3	18.2	15.5	11.7	10.2	5.40	4.65	
	1.65	103	81.3	66.6	52.3	34.1	25.1	21.2	18.0	15.4	11.7	10.2	5.38	4.64	
	1.70	99.6	78.9	64.6	51.0	33.8	25.0	21.0	17.9	15.3	11.6	10.1	5.37	4.61	
	1.75	96.2	76.9	63.0	50.0	33.3	24.8	20.9	17.8	15.2	11.5	10.1	5.34	4.60	
	1.80	91.2	74.1	60.7	48.4	32.4	24.1	20.3	17.3	14.7	11.2	10.0	5.30	4.58	
	1.85	88.0	71.5	58.6	46.8	31.8	23.4	19.8	16.8	14.4	10.9	9.86	5.21	4.47	
12-ETGB-120	1.60	127	99.6	81.6	63.7	41.2	30.4	25.6	21.8	18.6	14.1	12.2	6.47	5.58	
	1.65	124	97.6	80.0	62.8	40.9	30.2	25.4	21.7	18.5	14.0	12.2	6.46	5.57	
	1.70	120	94.6	77.5	61.2	40.6	30.0	25.3	21.5	18.4	13.9	12.2	6.44	5.53	
	1.75	115	92.3	75.6	60.0	40.0	29.8	25.1	21.4	18.2	13.8	12.1	6.40	5.52	
	1.80	109	88.9	72.9	58.1	38.9	28.9	24.3	20.7	17.7	13.4	12.0	6.36	5.50	
	1.85	106	85.9	70.3	56.2	38.1	28.1	23.7	20.2	17.2	13.0	11.8	6.25	5.36	
12-ETGB-140	1.60	148	116	95.2	74.3	48.0	35.4	29.8	25.4	21.7	16.4	14.3	7.55	6.51	
	1.65	145	114	93.3	73.2	47.7	35.2	29.7	25.3	21.6	16.3	14.2	7.54	6.50	
	1.70	139	110	90.4	71.4	47.3	35.0	29.5	25.1	21.4	16.2	14.2	7.52	6.45	
	1.75	135	108	88.3	70.0	46.6	34.7	29.3	24.9	21.3	16.1	14.1	7.47	6.44	
	1.80	128	104	85.0	67.8	45.4	33.7	28.4	24.2	20.6	15.6	14.0	7.42	6.41	
	1.85	123	100	82.1	65.6	44.5	32.8	27.7	23.5	20.1	15.2	13.8	7.29	6.26	
12-ETGB-160	1.60	170	133	109	85.0	54.9	40.5	34.1	29.0	24.8	18.8	16.3	8.63	7.44	
	1.65	166	130	107	83.7	54.6	40.2	33.9	28.9	24.7	18.7	16.3	8.62	7.42	
	1.70	159	126	103	81.6	54.1	40.0	33.7	28.7	24.5	18.5	16.2	8.59	7.37	
	1.75	154	123	101	79.9	53.3	39.7	33.4	28.5	24.3	18.4	16.1	8.54	7.36	
	1.80	146	119	97.2	77.5	51.9	38.5	32.4	27.6	23.6	17.8	16.0	8.48	7.33	
	1.85	141	114	93.8	74.9	50.8	37.5	31.6	26.9	23.0	17.4	15.8	8.34	7.15	
12-ETGB-180	1.60	191	149	122	95.6	61.8	45.5	38.4	32.7	27.9	21.1	18.3	9.71	8.37	
	1.65	186	146	120	94.1	61.4	45.3	38.1	32.5	27.7	21.0	18.3	9.69	8.35	
	1.70	179	142	116	91.8	60.8	45.0	37.9	32.3	27.6	20.8	18.2	9.66	8.29	
	1.75	173	138	113	89.9	59.9	44.6	37.6	32.0	27.4	20.7	18.1	9.61	8.28	
	1.80	164	133	109	87.2	58.4	43.3	36.5	31.1	26.5	20.1	18.0	9.54	8.24	
	1.85	158	129	106	84.3	57.2	42.2	35.6	30.3	25.9	19.6	17.7	9.38	8.04	

Current

Amperes at 25°C

SEC bloc type	Discharge data amps at 25°C														
	End volts/ Cell	Discharge time in minutes					Discharge time in hours								
		15min	30min	45min	1hr	2hr	3hr	4hr	5hr	6hr	8hr	10hr	20hr	24hr	
12-ETGB-20	1.60	212	166	136	106	68.6	50.6	42.6	36.3	31.0	23.5	20.4	10.8	9.30	
	1.65	207	163	133	105	68.2	50.3	42.4	36.1	30.8	23.3	20.3	10.8	9.28	
	1.70	199	158	129	102	67.6	49.9	42.1	35.8	30.6	23.2	20.3	10.7	9.21	
	1.75	192	154	126	99.9	66.6	49.6	41.8	35.6	30.4	23.0	20.1	10.7	9.20	
	1.80	182	148	121	96.9	64.9	48.1	40.5	34.5	29.5	22.3	20.0	10.6	9.16	
	1.85	176	143	117	93.7	63.5	46.9	39.5	33.6	28.7	21.7	19.7	10.4	8.94	

Power

Watts/cell at 25°C

SEC bloc type	Discharge data watts/cell at 25°C														
	End volts/ Cell	Discharge time in minutes					Discharge time in hours								
		15min	30min	45min	1hr	2hr	3hr	4hr	5hr	6hr	8hr	10hr	20hr	24hr	
12-ETGB-20	1.60	38.8	31.0	25.4	20.2	13.2	9.92	8.36	7.15	6.11	4.65	4.05	2.16	1.87	
	1.65	37.9	30.4	24.9	19.9	13.2	9.86	8.31	7.11	6.07	4.62	4.04	2.15	1.87	
	1.70	36.5	29.5	24.2	19.4	13.0	9.79	8.25	7.06	6.03	4.59	4.03	2.15	1.85	
	1.75	35.2	28.8	23.6	19.0	12.9	9.72	8.19	7.01	5.99	4.55	4.00	2.13	1.85	
	1.80	33.4	27.7	22.7	18.4	12.5	9.43	7.95	6.80	5.81	4.42	3.98	2.12	1.84	
	1.85	32.2	26.8	21.9	17.8	12.3	9.19	7.74	6.63	5.66	4.30	3.92	2.08	1.80	
12-ETGB-30	1.60	58.2	46.6	38.1	30.3	19.9	14.9	12.5	10.7	9.16	6.97	6.08	3.24	2.80	
	1.65	56.8	45.6	37.4	29.8	19.7	14.8	12.5	10.7	9.11	6.93	6.07	3.23	2.80	
	1.70	54.7	44.2	36.2	29.1	19.6	14.7	12.4	10.6	9.05	6.88	6.05	3.22	2.78	
	1.75	52.8	43.2	35.4	28.5	19.3	14.6	12.3	10.5	8.98	6.83	6.00	3.20	2.77	
	1.80	50.0	41.6	34.1	27.6	18.8	14.1	11.9	10.2	8.71	6.63	5.97	3.18	2.76	
	1.85	48.3	40.1	32.9	26.7	18.4	13.8	11.6	9.94	8.49	6.46	5.89	3.13	2.69	
12-ETGB-40	1.60	77.6	62.1	50.9	40.4	26.5	19.8	16.7	14.3	12.2	9.29	8.10	4.32	3.74	
	1.65	75.7	60.8	49.8	39.8	26.3	19.7	16.6	14.2	12.1	9.24	8.09	4.31	3.73	
	1.70	72.9	59.0	48.3	38.7	26.1	19.6	16.5	14.1	12.1	9.17	8.06	4.30	3.70	
	1.75	70.5	57.6	47.2	38.0	25.7	19.4	16.4	14.0	12.0	9.11	8.00	4.27	3.70	
	1.80	66.7	55.4	45.4	36.8	25.0	18.9	15.9	13.6	11.6	8.83	7.96	4.24	3.68	
	1.85	64.4	53.5	43.8	35.6	24.5	18.4	15.5	13.3	11.3	8.61	7.85	4.17	3.59	
12-ETGB-50	1.60	97.0	77.6	63.6	50.4	33.1	24.8	20.9	17.9	15.3	11.6	10.1	5.40	4.67	
	1.65	94.7	76.1	62.3	49.7	32.9	24.6	20.8	17.8	15.2	11.5	10.1	5.38	4.66	
	1.70	91.2	73.7	60.4	48.4	32.6	24.5	20.6	17.7	15.1	11.5	10.1	5.37	4.63	
	1.75	88.1	71.9	58.9	47.5	32.1	24.3	20.5	17.5	15.0	11.4	10.0	5.34	4.62	
	1.80	83.4	69.3	56.8	46.0	31.3	23.6	19.9	17.0	14.5	11.0	10.0	5.30	4.60	
	1.85	80.5	66.9	54.8	44.5	30.7	23.0	19.4	16.6	14.1	10.8	9.81	5.21	4.49	
12-ETGB-60	1.60	116	93.1	76.3	60.5	39.7	29.7	25.1	21.5	18.3	13.9	12.2	6.47	5.61	
	1.65	114	91.3	74.8	59.6	39.5	29.6	24.9	21.3	18.2	13.9	12.1	6.46	5.60	
	1.70	109	88.5	72.5	58.1	39.1	29.4	24.8	21.2	18.1	13.8	12.1	6.44	5.56	
	1.75	106	86.3	70.7	57.0	38.6	29.2	24.6	21.0	18.0	13.7	12.0	6.40	5.55	
	1.80	100	83.2	68.1	55.2	37.6	28.3	23.8	20.4	17.4	13.3	11.9	6.36	5.52	
	1.85	96.6	80.3	65.8	53.4	36.8	27.6	23.2	19.9	17.0	12.9	11.8	6.25	5.39	
12-ETGB-80	1.60	155	124	102	80.7	53.0	39.7	33.4	28.6	24.4	18.6	16.2	8.63	7.48	
	1.65	151	122	99.7	79.5	52.7	39.4	33.2	28.4	24.3	18.5	16.2	8.62	7.46	
	1.70	146	118	96.6	77.5	52.2	39.2	33.0	28.2	24.1	18.3	16.1	8.59	7.41	
	1.75	141	115	94.3	75.9	51.4	38.9	32.8	28.1	24.0	18.2	16.0	8.54	7.39	
	1.80	133	111	90.8	73.6	50.1	37.7	31.8	27.2	23.2	17.7	15.9	8.48	7.36	
	1.85	129	107	87.7	71.2	49.1	36.7	31.0	26.5	22.6	17.2	15.7	8.34	7.19	

Power

Watts/cell at 25°C

SEC bloc type	Discharge data watts/cell at 25°C														
	End volts/ Cell	Discharge time in minutes					Discharge time in hours								
		15min	30min	45min	1hr	2hr	3hr	4hr	5hr	6hr	8hr	10hr	20hr	24hr	
12-ETGB-100	1.60	194	155	127	100.9	66.2	49.6	41.8	35.8	30.5	23.2	20.3	10.8	9.34	
	1.65	189	152	125	99.4	65.8	49.3	41.5	35.6	30.4	23.1	20.2	10.8	9.33	
	1.70	182	147	121	96.9	65.2	48.9	41.3	35.3	30.2	22.9	20.2	10.7	9.26	
	1.75	176	144	118	94.9	64.3	48.6	41.0	35.1	29.9	22.8	20.0	10.7	9.24	
	1.80	167	139	114	92.0	62.6	47.1	39.7	34.0	29.0	22.1	19.9	10.6	9.21	
	1.85	161	134	110	89.0	61.3	45.9	38.7	33.1	28.3	21.5	19.6	10.4	8.98	
12-ETGB-120	1.60	233	186	153	121	79.5	59.5	50.1	42.9	36.7	27.9	24.3	12.9	11.2	
	1.65	227	183	150	119	79.0	59.1	49.8	42.7	36.4	27.7	24.3	12.9	11.2	
	1.70	219	177	145	116	78.3	58.7	49.5	42.4	36.2	27.5	24.2	12.9	11.1	
	1.75	211	173	141	114	77.1	58.3	49.2	42.1	35.9	27.3	24.0	12.8	11.1	
	1.80	200	166	136	110	75.1	56.6	47.7	40.8	34.9	26.5	23.9	12.7	11.0	
	1.85	193	161	132	107	73.6	55.1	46.5	39.8	34.0	25.8	23.5	12.5	10.8	
12-ETGB-140	1.60	272	217	178	141	92.7	69.4	58.5	50.1	42.8	32.5	28.4	15.1	13.1	
	1.65	265	213	174	139	92.1	69.0	58.2	49.8	42.5	32.3	28.3	15.1	13.1	
	1.70	255	206	169	136	91.3	68.5	57.8	49.4	42.2	32.1	28.2	15.0	13.0	
	1.75	247	201	165	133	90.0	68.1	57.3	49.1	41.9	31.9	28.0	14.9	12.9	
	1.80	234	194	159	129	87.7	66.0	55.6	47.6	40.7	30.9	27.9	14.8	12.9	
	1.85	225	187	153	125	85.8	64.3	54.2	46.4	39.6	30.1	27.5	14.6	12.6	
12-ETGB-160	1.60	310	248	203	161	106	79.3	66.9	57.2	48.9	37.2	32.4	17.3	15.0	
	1.65	303	243	199	159	105	78.9	66.5	56.9	48.6	36.9	32.3	17.2	14.9	
	1.70	292	236	193	155	104	78.3	66.0	56.5	48.2	36.7	32.3	17.2	14.8	
	1.75	282	230	189	152	103	77.8	65.5	56.1	47.9	36.4	32.0	17.1	14.8	
	1.80	267	222	182	147	100	75.4	63.6	54.4	46.5	35.3	31.8	17.0	14.7	
	1.85	258	214	175	142	98.1	73.5	61.9	53.0	45.3	34.4	31.4	16.7	14.4	
12-ETGB-180	1.60	349	279	229	182	119	89.2	75.2	64.4	55.0	41.8	36.5	19.4	16.8	
	1.65	341	274	224	179	118	88.7	74.8	64.0	54.7	41.6	36.4	19.4	16.8	
	1.70	328	265	217	174	117	88.1	74.3	63.6	54.3	41.3	36.3	19.3	16.7	
	1.75	317	259	212	171	116	87.5	73.7	63.1	53.9	41.0	36.0	19.2	16.6	
	1.80	300	249	204	166	113	84.9	71.5	61.2	52.3	39.8	35.8	19.1	16.6	
	1.85	290	241	197	160	110	82.7	69.7	59.6	50.9	38.7	35.3	18.8	16.2	
12-ETGB-200	1.60	388	310	254	202	132	99.2	83.6	71.5	61.1	46.5	40.5	21.6	18.7	
	1.65	379	304	249	199	132	98.6	83.1	71.1	60.7	46.2	40.4	21.5	18.7	
	1.70	365	295	242	194	130	97.9	82.5	70.6	60.3	45.9	40.3	21.5	18.5	
	1.75	352	288	236	190	129	97.2	81.9	70.1	59.9	45.5	40.0	21.3	18.5	
	1.80	334	277	227	184	125	94.3	79.5	68.0	58.1	44.2	39.8	21.2	18.4	
	1.85	322	268	219	178	123	91.9	77.4	66.3	56.6	43.0	39.2	20.8	18.0	

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

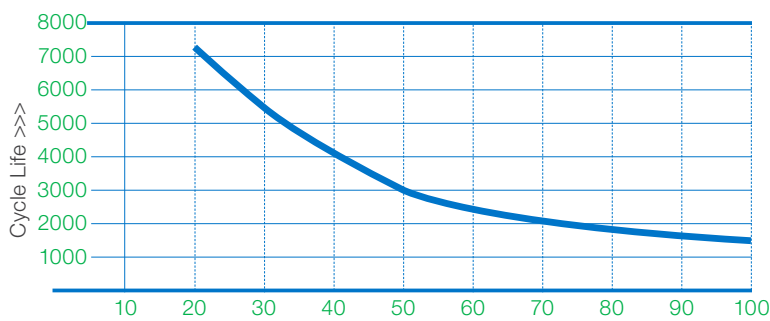
Charging method

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

Cycle life

Relationship between depth of discharge and life

Ambient temperature 25°C

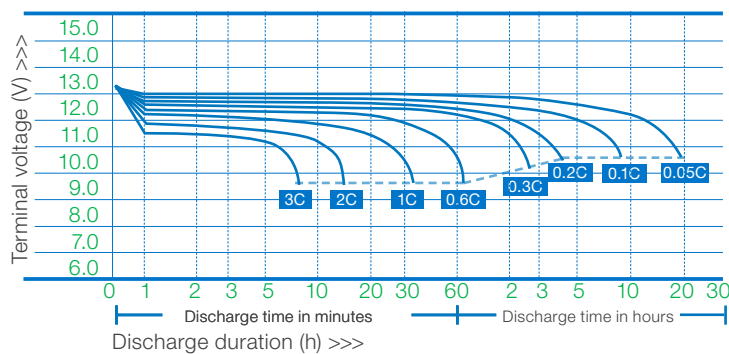


The depth of discharge critically affects the number of cycles which a battery will complete during its life time.

Discharge characteristic

Discharge current VS discharge time curve

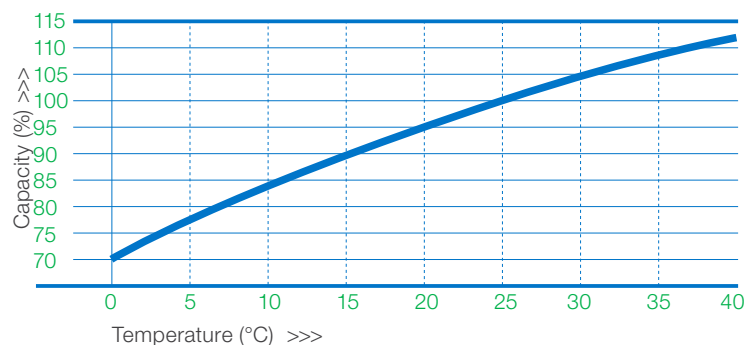
Ambient temperature 25°C



Effect of discharge rate on battery capacity.

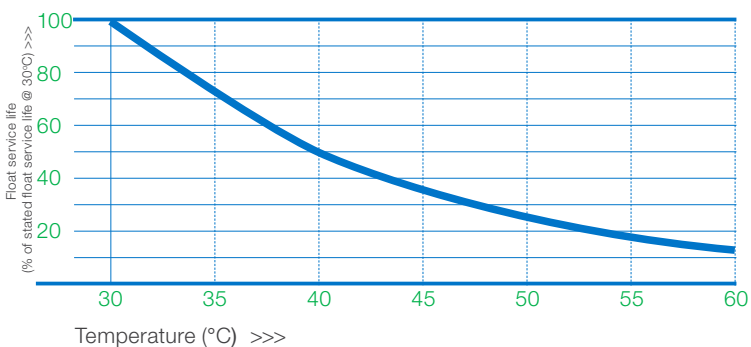
Effect of inclined temperature

Effect of temperature on capacity at C/10 discharge rate



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

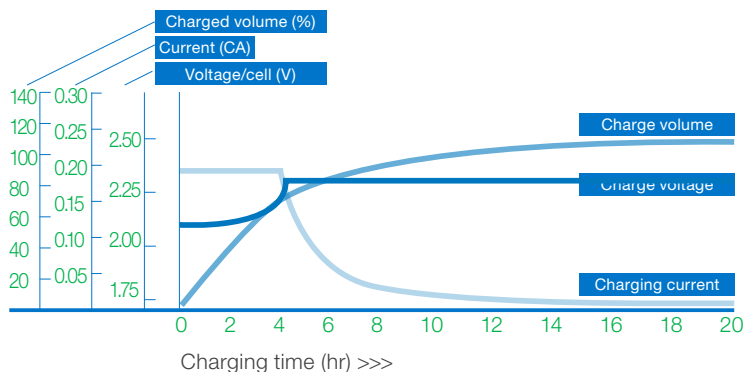
Float service life VS temperature



Effect of temperature on float service life

Charge method

Constant current/voltage charge characteristic



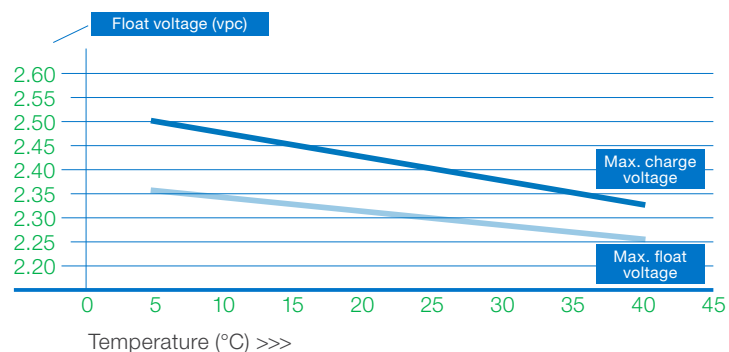
The preferred charging procedure should be in accordance with DIN 41773, constant current/constant voltage (IU characteristic). Constant float charging utilising a constant voltage charger is also acceptable.

Charging voltage measured at the battery terminals: 2.35 - 2.40V ±1% x number of cells.

Equalising or fast charging can occasionally be permitted in which the charging voltage is 2.40V x 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 2.25 - 2.30V ±1% x number of cells should follow after this period.

Charge compensation

Temperature compensation for float voltage



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