



ESPEX
ULTRAMAT E
Sealed VRLA Batteries

The Ultimate in Standby Power

The New Generation Sealed VRLA Batteries

from ESPEX - UK

50 years in DC Power Solutions

EspeX Batteries Limited - UK provides total DC power solutions. The vast technical, manufacturing and marketing experience of the Group has propelled our batteries to the forefront of energy storage solutions for a greener world.

Backed by dedicated sales and service support teams, as well as a worldwide distribution network, EspeX Batteries now offers a comprehensive range of batteries, power systems and related ancillary products that cover every facet of stationary and motive power applications.

The EspeX Ultramate range of Sealed Valve Regulated Lead Acid (VRLA) batteries is the latest offering of EspeX Batteries-UK. It is the result of careful evaluation of user needs and extensive R & D efforts.

Advantage EspeX Ultramate

- **Virtually Maintenance Free**
No topping up needed. The battery only requires periodic visual checks, voltage monitoring and retorquing of connections.
- **Ready-to-use**
Supplied factory charged in modular steel casing for protection and optimal heat dissipation.
- **Eco-friendly**
No emission of corrosive fumes or gases under normal operating conditions. Hence, no separate battery room is required.
- **No Installation Constraints**
Compact, easy to handle or transport, and can be used in any orientation without leakage or spillage of electrolyte. Quick cell replacement.
- **Saving in Floor Space**
Horizontally stackable modules, low footprint.
- **Excellent Deep Discharge Recovery**
- **Long Life Expectancy in Float Application**
20 years at 25°C
- **Long Life Expectancy in Cycling Application**
4000 cycles at 20% depth of discharge at 25°C
1800 cycles at 50% depth of discharge at 25°C
1400 cycles at 80% depth of discharge at 25°C
- **Discharge Performance Conformance**
 - BS6290 Part 4
 - IEC 60896-21 & 22
 - JIS 8704-2: 1999
 - ANSI T1 330

Application

- Telecommunications
- Off-shore Platforms
- Switchgear & Control
- Office Automation Equipment
- UPS Systems
- Railway Signalling & Telecom
- Geophysical Equipment
- Alternative Energy Systems
- Photovoltaic Systems

ESPEX ULTRAMATE

The ultimate combination of maximum power stored in minimum space.

EPST and MST Range Module

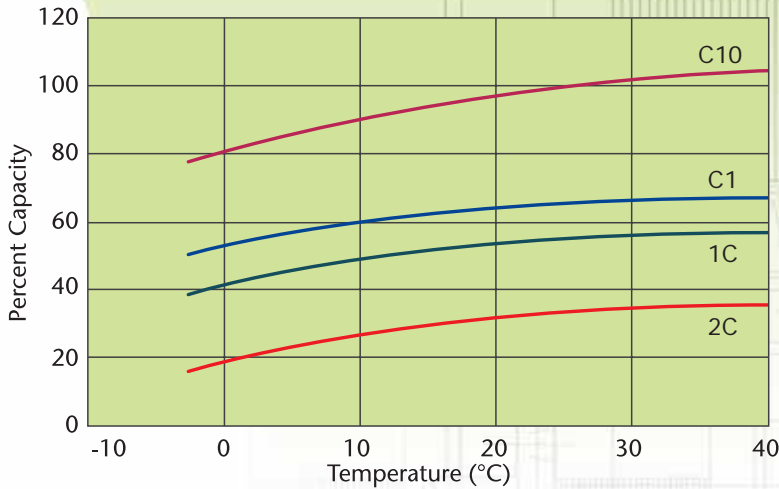
Dimensions & Weights

Battery Model	Module Nominal Voltage	Capacity @ 10 Hr. 1.85V	Dimensions (±5mm)			Weight (±5%)
			Length	Depth	Height	
	Volts	AH	mm	mm	mm	Kg
EPST Range						
6EPST200	12	200	703	423	268	87
6EPST240	12	240	703	423	268	96
6EPST280	12	280	703	423	268	108
6EPST300	12	300	682	424	292	114
6EPST320	12	320	682	424	292	117
MST Range						
4MST400	8	400	789	468	255	141
4MST500	8	500	789	468	255	148
4MST600	8	600	789	468	255	166
2MST800	4	800	462	466	363	122
2MST1000	4	1000	462	466	363	145
2MST1250	4	1250	436	466	511	179
2MST1500	4	1500	436	466	511	200
MST2000	2	2000	436	466	363	145
MST2500	2	2500	436	466	511	179
MST3000	2	3000	436	466	511	200
MST4000	2	4000	872	466	363	290
MST5000	2	5000	872	466	511	358
MST6000	2	6000	872	466	511	400

Note:

- Batteries with other intermediate capacities can be provided on request.
- Module dimensions are for horizontal stack assembly.
- Module depth includes transparent plastic front cover.
- Add 125mm for bottom support I-beam to determine final height.

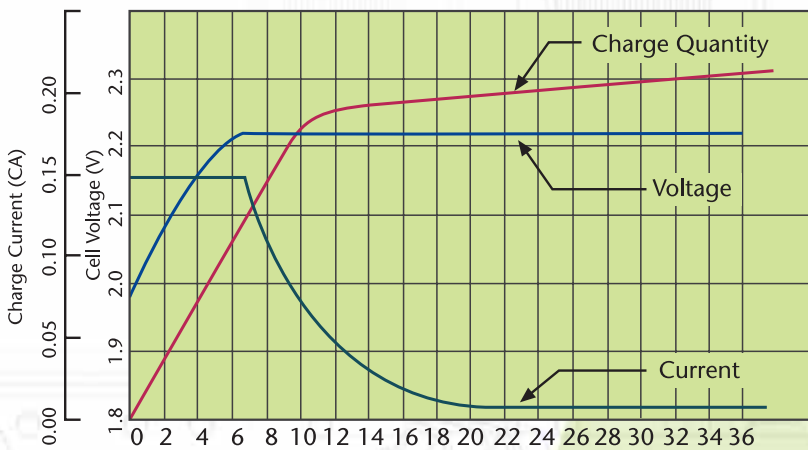
Characteristics Of EPST & MST Batteries



Capacity as a function of temperature

The adjacent graph shows the effect of temperature on capacity at various rates of discharge.

Avoid operating the battery below -15°C (5°F) or beyond 50°C (122°F) since damage may occur even though the battery may still operate.



Recharging

Apply constant voltage with current limit for all normal charging conditions and particularly where the battery is kept fully charged in parallel with the charger and load circuit. In order to achieve optimum service life, it is recommended that the float voltage per cell and charge current be limited to the values provided in the "Charge Parameters Table".

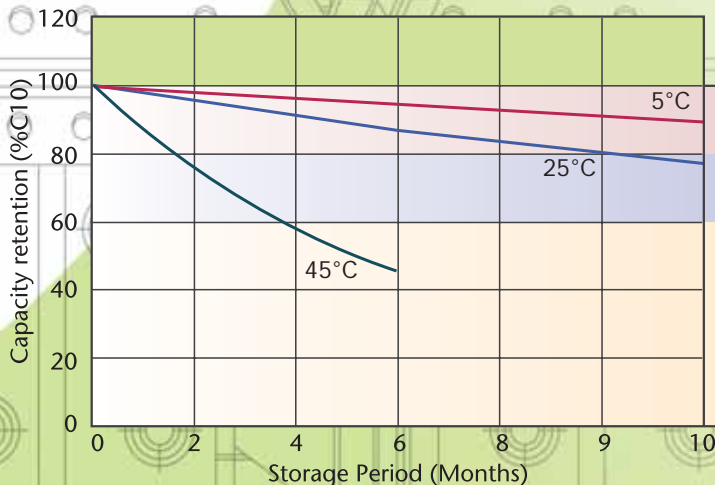
Ensure that the applied voltage does not drop below the minimum values indicated in the table.

Temperature : 25°C
 Discharge : 100% C10 rate
 Recharge : 2.23vpc
 0.15C Amps

Storage

Lead-acid batteries require periodic recharge to compensate self-discharge during storage. The recharge interval depends on storage temperature. Follow the recommendations to avoid permanent capacity loss.

Store the batteries away from direct sunlight, dust, high ambient humidity or chemical vapors.



No supplementary charge recommended, unless 100% capacity is required.

Supplementary charge is required before use to recover capacity. Charge as early as possible.

Supplementary charge may often fail to recover capacity. Battery should never be left standing till this state is reached.

EPST Range : Constant Current Discharge Performance at 25°C

Battery Model	Final Volt per cell	Discharge Current in Amps							
		10 Hr.	8 Hr.	5 Hr.	4 Hr.	3 Hr.	2 Hr.	1 Hr.	30 min.
EPST200	1.80	20.20	23.60	33.60	40.00	48.60	65.60	104.00	154.00
	1.70	—	—	36.40	43.40	53.60	72.60	117.40	185.00
	1.60	—	—	—	—	—	—	126.40	208.00
EPST240	1.80	24.24	28.32	40.32	48.00	58.32	78.72	124.80	184.80
	1.70	—	—	43.68	52.08	64.32	87.12	140.88	222.00
	1.60	—	—	—	—	—	—	151.68	249.60
EPST280	1.80	28.28	33.04	47.04	56.00	68.04	91.84	145.60	215.60
	1.70	—	—	50.96	60.76	75.04	101.64	164.36	259.00
	1.60	—	—	—	—	—	—	176.96	291.20
EPST300	1.80	30.30	35.40	50.40	60.00	72.90	98.40	156.00	231.00
	1.70	—	—	54.60	65.10	80.40	108.90	176.10	277.50
	1.60	—	—	—	—	—	—	189.60	312.00
EPST320	1.80	32.32	37.76	53.76	64.00	77.76	104.96	166.40	246.40
	1.70	—	—	58.24	69.44	85.76	116.16	187.84	296.00
	1.60	—	—	—	—	—	—	202.24	332.80

2V CELL SPECIFICATIONS

Cell Type	Single Cell Dimensions (L ±3 x W ± 3 x H ± ±5mm)	Single Cell Weight (kg) ±5%
EPST200	172 x 114 x 394	13
EPST300	167 x 126 x 394	17.5
MST400	194 x 172 x 506	30.5
MST500	194 x 172 x 506	33
MST600	194 x 172 x 506	36.5
MST1000	303 x 172 x 506	60
MST1250	452 x 172 x 506	74
MST1500	452 x 172 x 506	84.5
MST2000 (2 x 1000)	2 x 303 x 172 x 506	2 x 60
MST2500 (2 x 1250)	2 x 452 x 172 x 506	2 x 74
MST3000 (2 x 1500)	2 x 452 x 172 x 506	2 x 84.5
MST4000 (4 x 1000)	4 x 303 x 172 x 506	4 x 60
MST5000 (4 x 1250)	4 x 452 x 172 x 506	4 x 74
MST6000 (4 x MST1500)	4 x 452 x 172 x 506	4 x 84.5

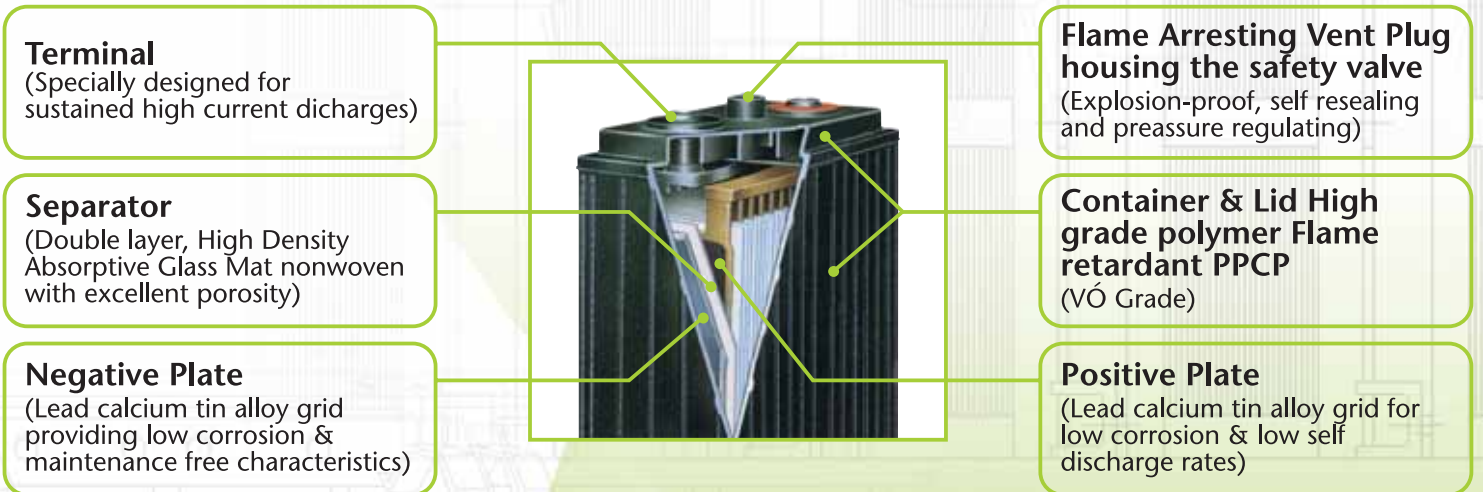
Batteries are shipped at 90% of their rated capacity.
100% capacity will be achieved by cycling the battery or after 3 months of "Float" service.

Charge Parameters Table

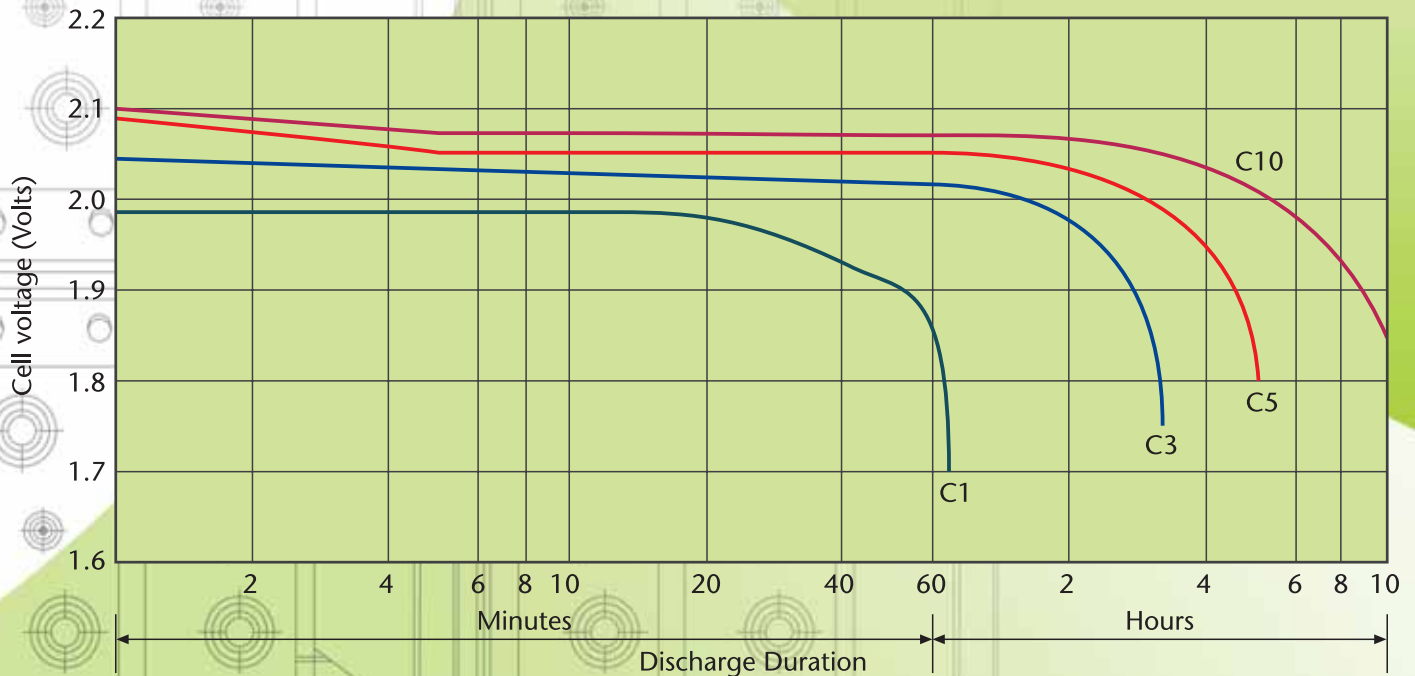
Ambient Temperature	Recommended Float Voltage	Limit Current (Amps)
-5 to 14°C	2.27 ± 0.02 V/cell	0.15C*
15 to 24°C	2.25 ± 0.02 V/cell	0.15C*
25 to 34°C	2.23 ± 0.01 V/cell	0.15C*
35 to 40°C	2.20 ± 0.01 V/cell	0.15C*

*C is the nominal capacity of the cell/battery at 10 hour rate, at 25°C.

Construction



Discharge Performance Curves



MST Range: Constant Current / Discharge Performance at 25°C

Battery Model	Final Volt per cell	Discharge Current in Amps							
		10 Hr.	8 Hr.	5 Hr.	4 Hr.	3 Hr.	2 Hr.	1 Hr.	30 min.
4MST400	1.80	40.40	47.20	67.20	80.00	97.20	131.20	208.00	308.00
	1.70	—	—	72.80	86.80	107.20	145.20	234.80	370.00
	1.60	—	—	—	—	—	—	252.80	416.00
4MST500	1.80	50.50	59.00	84.00	100.00	121.50	164.00	260.00	385.00
	1.70	—	—	91.00	108.50	134.00	181.50	293.50	462.50
	1.60	—	—	—	—	—	—	316.00	520.00
4MST600	1.80	60.60	70.80	100.80	120.00	145.80	196.80	312.00	462.00
	1.70	—	—	109.20	130.20	160.80	217.80	352.20	555.00
	1.60	—	—	—	—	—	—	379.20	624.00
2MST800	1.80	80.80	94.40	134.40	160.00	194.40	262.40	416.00	616.00
	1.70	—	—	145.60	173.60	214.40	290.40	469.60	740.00
	1.60	—	—	—	—	—	—	505.60	832.00
2MST1000	1.80	101.00	118.00	168.00	200.00	243.00	328.00	520.00	770.00
	1.70	—	—	182.00	217.00	268.00	363.00	587.00	925.00
	1.60	—	—	—	—	—	—	632.00	1040.00
2MST1250	1.80	126.25	147.50	227.50	250.00	303.75	410.00	650.00	962.50
	1.70	—	—	227.50	271.25	335.00	453.75	733.75	1156.25
	1.60	—	—	—	—	—	—	790.00	1300.00
2MST1500	1.80	151.50	177.00	252.00	300.00	364.50	492.00	780.00	1155.00
	1.70	—	—	273.00	325.50	402.00	544.50	880.50	1387.50
	1.60	—	—	—	—	—	—	948.00	1560.00
MST1600	1.80	161.60	188.80	268.80	320.00	388.80	524.80	832.00	1232.00
	1.70	—	—	291.20	347.20	428.80	580.80	939.20	1480.00
	1.60	—	—	—	—	—	—	1011.20	1664.00
MST2000	1.80	202.00	236.00	336.00	400.00	486.00	656.00	1040.00	1540.00
	1.70	—	—	364.00	434.00	536.00	726.00	1174.00	1850.00
	1.60	—	—	—	—	—	—	1264.00	2080.00
MST2500	1.80	252.50	295.00	420.00	500.00	607.50	820.00	1300.00	1925.00
	1.70	—	—	455.00	542.50	670.00	907.50	1467.50	2312.50
	1.60	—	—	—	—	—	—	1580.00	2600.00
MST3000	1.80	303.00	354.00	546.00	600.00	729.00	984.00	1560.00	2310.00
	1.70	—	—	546.00	651.00	804.00	1089.00	1761.00	2775.00
	1.60	—	—	—	—	—	—	1896.00	3120.00
MST4000	1.80	404.00	472.00	672.00	800.00	972.00	1312.00	2080.00	3080.00
	1.70	—	—	728.00	868.00	1072.00	1452.00	2348.00	3700.00
	1.60	—	—	—	—	—	—	2528.00	4160.00
MST5000	1.80	505.00	590.00	840.00	1000.00	1215.00	1640.00	2600.00	3850.00
	1.70	—	—	910.00	1085.00	1340.00	1815.00	2935.00	4625.00
	1.60	—	—	—	—	—	—	3160.00	5200.00
MST6000	1.80	606.00	708.00	1008.00	1200.00	1458.00	1968.00	3120.00	4620.00
	1.70	—	—	1092.00	1302.00	1608.00	2178.00	3522.00	5550.00
	1.60	—	—	—	—	—	—	3792.00	6240.00

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100% capacity will be achieved by cycling the battery or after 3 months of "Float" service.



Batteries Limited

For Greener Energy Storage



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