

# UPST Battery



SEALED  
MAINTENANCE FREE  
VRLA BATTERIES

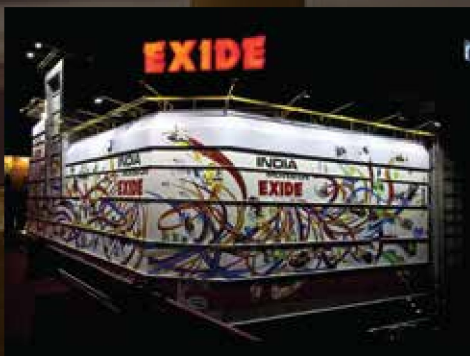


**EXIDE**

Exide Industries Limited, India

INDUSTRIAL  
SOLUTION  
**POWER**





- ✚ Headquartered in **Kolkata**, India
- ✚ Products : **Lead Acid Storage Batteries** : 2.5Ah to 20,000 Ah  
**Home UPS**  
**DC Power Solution**  
**Standby Products & Solutions**
- ✚ **9 Manufacturing units** in India
- ✚ **1 R&D Center** in India
- ✚ **5 Wholly owned Subsidiaries** in India
- ✚ Turnover of **USD 1.3 Billion**
- ✚ An Integrated Manufacturing Unit for **Standby Systems and DC Power solutions** in Kolkata, India.

## TECHNICAL FEATURES



### Maintenance Free

No topping up is required



### Enhanced Performance

- Computer aided grid design for high power density
- Excellent deep discharge recovery
- Better thermal management in the module
- Resistance to thermal runaway



### Ready-to-use

Supplied in factory charged condition



### State-of-the-art technology

- Argon arc welding employed
- Heat sealing checked by Helium Ion Tester
- Flame arrestor fitted safety valve



### Eco-friendly

- No emission of corrosive fumes or gases under normal operating conditions.
- Cadmium free



### Easy handling & no intallation constraints

Compact, easily transportable and can be used in any orientation without leakage or spillage of electrolyte.



Low self discharge, Antimony - free positive alloy and hence self-discharge is less than 0.5% per week



### Saving in floor space

Horizontally stackable modules, low foot-print



### User friendly

- Front access design
- Easy cell replacement
- can be used in any orientation



### Life Expectancy in number of cycles at 27°C

4000 Cycles at 20% DOD

1800 cycles at 50% DOD

1200 cycles at 80% DOD



### Allowable Ripple

5A (rms) per 100Ah C10 Capacity during float charge

10A (rms) per 100Ah C10 Capacity during bulk phase of charging

## RECOMMENDED FLOAT CHARGE

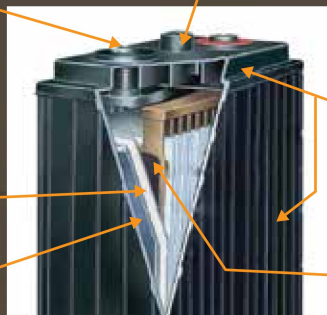
| Ambient temp (deg. C) | Recommended Float Voltage per cell (V) | Maximum Charging Current (Ampere) |
|-----------------------|----------------------------------------|-----------------------------------|
| -5 to 14              | 2.27 +/- 0.01                          | 0.15C                             |
| 15 to 24              | 2.25 +/- 0.01                          | 0.15C                             |
| 25 to 34              | 2.25 +/- 0.01                          | 0.15C                             |
| 35 to 40              | 2.20 +/- 0.01                          | 0.15C                             |

## CONSTRUCTION

**Terminal**  
(Specially designed for sustained high current damages)

**Separator** (Double layer, high density, absorptive glass mat nonwoven with excellent porosity)

**Negative Plate** (Lead calcium tin alloy grid providing low corrosion & maintenance free characteristics)



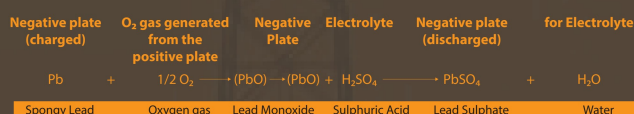
**Flame Arresting Vent Plug**  
housing the safety valve  
(Explosion-proof, self resealing and pressure regulating)

**Container & Lid made of high grade polypropylene co-polymer (PPCP)**

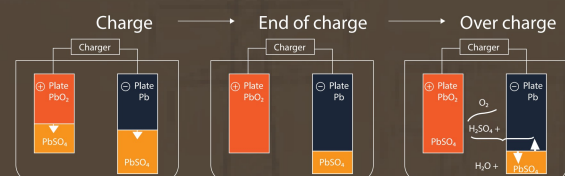
**Positive Plate** (Lead calcium tin alloy grid for low corrosion & low self discharge rates)

## RECOMBINATION PRINCIPLE

The recombination principle may be expressed as :



Recombination principle is illustrated in Figure as :



### Performance Characteristics Conforming

JIS : C8704 - 2: 1999

ANSI T1 330 (US specification for Telecom Battery)

IEC 60896 - 21 & 22

Tec Specification No. G/BAT - 01/02 MARCH 2000 with Latest Amendment

RDSO Specification No. IRS:593-96 with Latest Amendment



| Table No. : 1 TECHNICAL SPECIFICATIONS OF UNIT MODULES |                     |                     |                        |           |           |                                                                 |           |           |                                              |
|--------------------------------------------------------|---------------------|---------------------|------------------------|-----------|-----------|-----------------------------------------------------------------|-----------|-----------|----------------------------------------------|
| Battery Model                                          | Nominal Voltage (V) | Rated capacity (Ah) | Module Dimensions (mm) |           |           | Overall Module Dimensions (mm) with cells and connector shrouds |           |           | Total Weight Module with cells (Kg) $\pm$ 5% |
|                                                        |                     | 10 hr, 1.75 v/cell  | L $\pm$ 5              | D $\pm$ 5 | H $\pm$ 5 | L $\pm$ 5                                                       | D $\pm$ 5 | H $\pm$ 5 |                                              |
| 5UPST80                                                | 10                  | 80                  | 978                    | 400       | 78        | 978                                                             | 403       | 78        | 38.25                                        |
| 5UPST120                                               | 10                  | 120                 | 978                    | 400       | 78        | 978                                                             | 403       | 78        | 46.00                                        |
| 5UPST125                                               | 10                  | 125                 | 978                    | 400       | 78        | 978                                                             | 403       | 78        | 46.00                                        |
| 6UPST80                                                | 12                  | 80                  | 650                    | 400       | 146       | 650                                                             | 403       | 146       | 43.50                                        |
| 6UPST120                                               | 12                  | 120                 | 650                    | 400       | 146       | 650                                                             | 403       | 146       | 52.80                                        |
| 6UPST125                                               | 12                  | 125                 | 650                    | 400       | 146       | 650                                                             | 403       | 146       | 52.80                                        |
| 10UPST100                                              | 20                  | 100                 | 995                    | 239       | 160       | 995                                                             | 242       | 160       | 68.50                                        |
| 6UPST165                                               | 12                  | 165                 | 588                    | 372       | 210       | 588                                                             | 415       | 210       | 75.00                                        |
| 6UPST200                                               | 12                  | 200                 | 588                    | 372       | 210       | 588                                                             | 415       | 210       | 83.10                                        |
| 6UPST240                                               | 12                  | 240                 | 588                    | 378       | 288       | 588                                                             | 426       | 288       | 100.00                                       |
| 6UPST250                                               | 12                  | 250                 | 588                    | 378       | 288       | 588                                                             | 426       | 288       | 100.00                                       |
| 6UPST300                                               | 12                  | 300                 | 588                    | 378       | 288       | 588                                                             | 426       | 288       | 124.90                                       |
| 6UPST320                                               | 12                  | 320                 | 588                    | 378       | 288       | 588                                                             | 426       | 288       | 124.90                                       |
| 4UPST360                                               | 8                   | 360                 | 733                    | 369       | 236       | 733                                                             | 415       | 236       | 116.70                                       |
| 4UPST400                                               | 8                   | 400                 | 733                    | 369       | 236       | 733                                                             | 415       | 236       | 116.70                                       |
| 4UPST415                                               | 8                   | 415                 | 733                    | 369       | 236       | 733                                                             | 415       | 236       | 116.70                                       |
| 4UPST425                                               | 8                   | 425                 | 733                    | 369       | 236       | 733                                                             | 415       | 236       | 116.70                                       |
| 4UPST440                                               | 8                   | 440                 | 733                    | 369       | 236       | 733                                                             | 415       | 236       | 116.70                                       |
| 4UPST500                                               | 8                   | 500                 | 880                    | 563       | 176       | 880                                                             | 596       | 176       | 154.90                                       |
| 4UPST535                                               | 8                   | 535                 | 880                    | 563       | 176       | 880                                                             | 596       | 176       | 154.90                                       |
| 4UPST600                                               | 8                   | 600                 | 786                    | 468       | 244       | 786                                                             | 510       | 244       | 167.50                                       |
| 4UPST650                                               | 8                   | 650                 | 880                    | 563       | 176       | 880                                                             | 594       | 176       | 171.70                                       |
| 4UPST700                                               | 8                   | 700                 | 880                    | 563       | 194       | 880                                                             | 600       | 194       | 195.00                                       |
| 4UPST720                                               | 8                   | 720                 | 880                    | 563       | 194       | 880                                                             | 600       | 194       | 195.00                                       |
| 4UPST750                                               | 8                   | 750                 | 880                    | 563       | 194       | 880                                                             | 600       | 194       | 195.00                                       |
| 4UPST800                                               | 8                   | 800                 | 880                    | 563       | 212       | 880                                                             | 600       | 212       | 217.70                                       |
| 4UPST825                                               | 8                   | 825                 | 880                    | 563       | 212       | 880                                                             | 600       | 212       | 217.70                                       |
| 4UPST850                                               | 8                   | 850                 | 880                    | 563       | 212       | 880                                                             | 600       | 212       | 217.70                                       |
| 2UPST900                                               | 4                   | 900                 | 462                    | 468       | 363       | 462                                                             | 510       | 363       | 142.10                                       |
| 2UPST1000                                              | 4                   | 1000                | 462                    | 468       | 363       | 462                                                             | 510       | 363       | 142.10                                       |
| 2UPST1100                                              | 4                   | 1100                | 462                    | 468       | 363       | 462                                                             | 510       | 363       | 152.10                                       |
| 2UPST1250                                              | 4                   | 1250                | 436                    | 466       | 511       | 436                                                             | 510       | 511       | 188.00                                       |
| 2UPST1500                                              | 4                   | 1500                | 436                    | 466       | 511       | 436                                                             | 510       | 511       | 219.00                                       |
| 2UPST1600                                              | 4                   | 1600                | 436                    | 466       | 511       | 436                                                             | 510       | 511       | 219.00                                       |
| UPST2000                                               | 2                   | 2000                | 462                    | 468       | 363       | 462                                                             | 510       | 363       | 142.10                                       |
| UPST2500                                               | 2                   | 2500                | 436                    | 466       | 511       | 436                                                             | 510       | 511       | 188.00                                       |
| UPST3000                                               | 2                   | 3000                | 436                    | 466       | 511       | 436                                                             | 510       | 511       | 219.00                                       |
| UPST4000                                               | 2                   | 4000                | 436                    | 466       | 362       | 436                                                             | 510       | 362       | 280.20                                       |
| UPST5000                                               | 2                   | 5000                | 436                    | 466       | 511       | 436                                                             | 510       | 511       | 345.00                                       |

Note : Batteries of intermediate capacities can be made available on request.



Table no 2

## DISCHARGE RATE IN AMPS AT 27 DEG CELSIUS

| Cell type | Final Volt v/cell | 1 min | 5mins | 15mins | 30mins | 60mins | 90mins | 2 hrs | 3 hrs | 4 hrs | 5 hrs | 6 hrs | 8 hrs | 10 hrs |
|-----------|-------------------|-------|-------|--------|--------|--------|--------|-------|-------|-------|-------|-------|-------|--------|
| UPST 80   | 1.80              |       |       | 64     | 53     | 44     | 34     | 28    | 21    | 17    | 14    | 12    | 10    | 8      |
|           | 1.75              | 192   | 128   | 72     | 58     | 48     | 37     | 30    | 23    | 18    | 15    | 13    | 10    | 8      |
|           | 1.70              | 194   | 131   | 78     | 61     | 51     | 39     | 32    | 24    | 19    | 16    | 13    | 10    | 9      |
|           | 1.65              | 196   | 135   | 83     | 64     | 53     | 40     | 33    | 24    | 19    | 16    | 14    | 11    | 9      |
|           | 1.60              | 201   | 140   | 87     | 65     | 54     | 41     | 33    | 25    | 20    | 17    | 14    | 11    | 9      |
| UPST 100  | 1.80              |       |       | 81     | 67     | 55     | 43     | 36    | 27    | 22    | 18    | 15    | 12    | 10     |
|           | 1.75              | 240   | 160   | 90     | 72     | 60     | 46     | 38    | 28    | 23    | 19    | 16    | 13    | 10     |
|           | 1.70              | 243   | 164   | 98     | 76     | 64     | 48     | 39    | 29    | 24    | 20    | 17    | 13    | 11     |
|           | 1.65              | 245   | 169   | 104    | 80     | 66     | 50     | 41    | 31    | 24    | 20    | 17    | 13    | 11     |
|           | 1.60              | 251   | 175   | 109    | 82     | 68     | 51     | 42    | 31    | 25    | 21    | 18    | 14    | 11     |
| UPST 125  | 1.80              |       |       | 97     | 80     | 66     | 51     | 43    | 32    | 26    | 22    | 18    | 15    | 12     |
|           | 1.75              | 288   | 192   | 108    | 86     | 72     | 55     | 45    | 34    | 27    | 23    | 19    | 15    | 12.5   |
|           | 1.70              | 291   | 197   | 118    | 92     | 76     | 58     | 47    | 35    | 28    | 23    | 20    | 16    | 13     |
|           | 1.65              | 294   | 203   | 125    | 95     | 79     | 60     | 49    | 37    | 29    | 24    | 21    | 16    | 13     |
|           | 1.60              | 301   | 210   | 130    | 98     | 82     | 61     | 50    | 38    | 30    | 25    | 21    | 16    | 13     |
| UPST 165  | 1.80              |       |       | 133    | 110    | 91     | 70     | 59    | 44    | 36    | 30    | 25    | 20    | 16     |
|           | 1.75              | 96    | 264   | 149    | 119    | 99     | 76     | 62    | 47    | 38    | 31    | 27    | 21    | 16.5   |
|           | 1.70              | 400   | 271   | 162    | 126    | 105    | 80     | 65    | 49    | 39    | 32    | 28    | 21    | 18     |
|           | 1.65              | 405   | 279   | 172    | 131    | 109    | 82     | 67    | 50    | 40    | 33    | 28    | 22    | 18     |
|           | 1.60              | 414   | 288   | 179    | 135    | 112    | 84     | 69    | 52    | 41    | 34    | 29    | 23    | 18     |
| UPST 200  | 1.80              |       |       | 161    | 133    | 110    | 85     | 71    | 54    | 43    | 36    | 31    | 24    | 20     |
|           | 1.75              | 480   | 320   | 180    | 144    | 120    | 92     | 75    | 57    | 46    | 38    | 32    | 25    | 21     |
|           | 1.70              | 485   | 329   | 196    | 153    | 127    | 97     | 79    | 59    | 47    | 39    | 34    | 26    | 22     |
|           | 1.65              | 491   | 338   | 208    | 159    | 132    | 100    | 81    | 61    | 48    | 40    | 34    | 27    | 22     |
|           | 1.60              | 502   | 349   | 217    | 163    | 136    | 102    | 83    | 63    | 50    | 41    | 35    | 27    | 22     |
| UPST 240  | 1.80              |       |       | 202    | 167    | 138    | 107    | 89    | 67    | 54    | 45    | 39    | 31    | 25     |
|           | 1.75              | 600   | 400   | 225    | 180    | 151    | 115    | 94    | 71    | 57    | 47    | 41    | 32    | 26     |
|           | 1.70              | 606   | 411   | 245    | 191    | 159    | 121    | 99    | 74    | 59    | 49    | 42    | 33    | 27     |
|           | 1.65              | 613   | 423   | 261    | 199    | 166    | 125    | 102   | 77    | 61    | 50    | 43    | 34    | 28     |
|           | 1.60              | 628   | 437   | 272    | 204    | 170    | 127    | 104   | 79    | 63    | 52    | 44    | 34    | 28     |
| UPST 300  | 1.80              |       |       | 242    | 200    | 166    | 128    | 107   | 80    | 65    | 54    | 46    | 37    | 30     |
|           | 1.75              | 720   | 480   | 270    | 216    | 181    | 138    | 113   | 85    | 68    | 56    | 49    | 38    | 31     |
|           | 1.70              | 728   | 493   | 294    | 229    | 191    | 145    | 118   | 88    | 71    | 59    | 50    | 39    | 32     |
|           | 1.65              | 736   | 507   | 313    | 239    | 199    | 149    | 122   | 92    | 73    | 60    | 52    | 40    | 33     |
|           | 1.60              | 753   | 524   | 326    | 245    | 204    | 152    | 125   | 94    | 75    | 62    | 53    | 41    | 34     |
| UPST 320  | 1.80              |       | 904   | 629    | 391    | 294    | 245    | 183   | 150   | 113   | 90    | 75    | 64    | 49     |
|           | 1.75              | 792   | 528   | 297    | 238    | 199    | 151    | 124   | 94    | 75    | 62    | 53    | 42    | 34     |
|           | 1.70              | 800   | 542   | 323    | 252    | 210    | 159    | 130   | 97    | 78    | 64    | 55    | 43    | 36     |
|           | 1.65              | 809   | 558   | 344    | 262    | 218    | 164    | 134   | 101   | 80    | 66    | 57    | 44    | 36     |
|           | 1.60              | 828   | 577   | 359    | 269    | 224    | 168    | 138   | 104   | 83    | 68    | 58    | 45    | 37     |

Table no 2

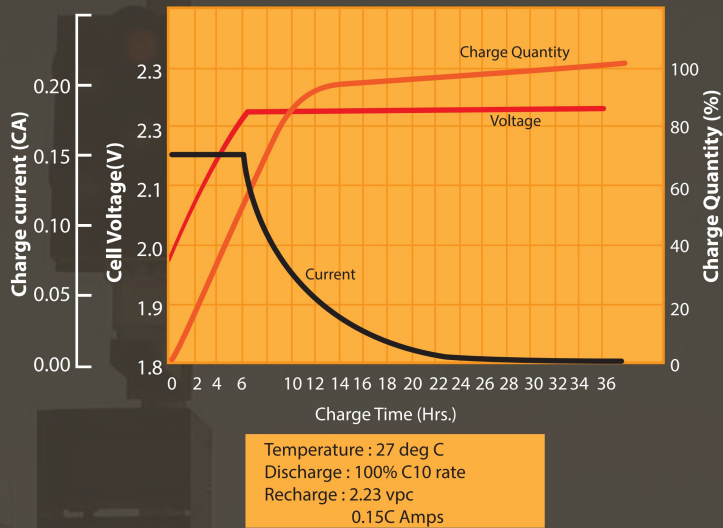
## DISCHARGE RATE IN AMPS AT 27 DEG CELSIUS

| Cell type | Final Volt v/cell | 1 min | 5mins | 15mins | 30mins | 60mins | 90mins | 2 hrs | 3 hrs | 4 hrs | 5 hrs | 6 hrs | 8 hrs | 10 hrs |
|-----------|-------------------|-------|-------|--------|--------|--------|--------|-------|-------|-------|-------|-------|-------|--------|
| UPST 360  | 1.80              |       |       |        | 242    | 204    | 171    | 133   | 113   | 85    | 69    | 58    | 50    | 40     |
|           | 1.75              | 864   |       |        | 290    | 240    | 199    | 154   | 128   | 96    | 78    | 65    | 55    | 44     |
|           | 1.70              | 873   | 864   | 576    | 324    | 259    | 217    | 165   | 136   | 102   | 82    | 68    | 58    | 45     |
|           | 1.65              | 883   | 873   | 591    | 353    | 275    | 229    | 174   | 142   | 106   | 85    | 70    | 60    | 47     |
|           | 1.60              | 904   | 883   | 608    | 375    | 286    | 238    | 179   | 147   | 110   | 87    | 72    | 62    | 48     |
| UPST 400  | 1.80              |       |       | 322    | 267    | 221    | 191    | 142   | 107   | 86    | 72    | 62    | 49    | 40     |
|           | 1.75              | 960   | 640   | 360    | 288    | 241    | 184    | 151   | 114   | 91    | 75    | 65    | 50    | 42     |
|           | 1.70              | 970   | 657   | 392    | 305    | 255    | 193    | 158   | 118   | 94    | 78    | 67    | 52    | 43     |
|           | 1.65              | 981   | 676   | 417    | 318    | 265    | 199    | 163   | 122   | 97    | 80    | 69    | 54    | 44     |
|           | 1.60              | 1004  | 699   | 435    | 326    | 272    | 203    | 167   | 126   | 100   | 83    | 71    | 55    | 45     |
| UPST 500  | 1.80              |       |       | 383    | 330    | 263    | 200    | 178   | 124   | 97    | 83    | 75    | 60    | 49     |
|           | 1.75              |       | 550   | 428    | 348    | 274    | 211    | 182   | 128   | 99    | 85    | 76    | 62    | 50     |
|           | 1.70              | 800   | 675   | 442    | 379    | 290    | 225    | 191   | 134   | 103   | 91    | 77    | 64    | 54     |
|           | 1.65              | 865   | 733   | 461    | 390    | 299    | 235    | 196   | 135   | 105   | 95    | 80    | 65    | 55     |
|           | 1.60              | 950   | 800   | 489    | 403    | 313    | 248    | 205   | 145   | 109   | 100   | 84    | 67    | 57     |
| UPST 600  | 1.80              |       |       | 459    | 396    | 316    | 240    | 213   | 148   | 116   | 99    | 89    | 71    | 58     |
|           | 1.75              |       | 660   | 513    | 417    | 328    | 253    | 218   | 153   | 119   | 101   | 91    | 74    | 60     |
|           | 1.70              | 960   | 810   | 530    | 455    | 348    | 270    | 229   | 160   | 123   | 109   | 92    | 77    | 64     |
|           | 1.65              | 1038  | 879   | 553    | 468    | 359    | 281    | 235   | 162   | 126   | 113   | 95    | 78    | 66     |
|           | 1.60              | 1140  | 960   | 578    | 483    | 375    | 297    | 246   | 174   | 131   | 120   | 100   | 80    | 68     |
| UPST 720  | 1.80              |       |       | 551    | 475    | 379    | 288    | 256   | 178   | 140   | 119   | 107   | 86    | 70     |
|           | 1.75              |       | 792   | 616    | 500    | 394    | 303    | 262   | 184   | 143   | 122   | 109   | 89    | 72     |
|           | 1.70              | 1152  | 972   | 636    | 546    | 418    | 324    | 274   | 192   | 148   | 131   | 111   | 92    | 77     |
|           | 1.65              | 1246  | 1055  | 663    | 562    | 431    | 338    | 282   | 194   | 151   | 136   | 114   | 94    | 79     |
|           | 1.60              | 1368  | 1152  | 704    | 580    | 450    | 356    | 295   | 209   | 157   | 144   | 120   | 96    | 81     |
| UPST 800  | 1.80              |       |       | 612    | 528    | 421    | 320    | 284   | 198   | 155   | 132   | 119   | 95    | 78     |
|           | 1.75              |       | 880   | 684    | 556    | 438    | 337    | 291   | 204   | 158   | 135   | 121   | 98    | 80     |
|           | 1.70              | 1280  | 1080  | 707    | 606    | 464    | 360    | 305   | 214   | 164   | 146   | 123   | 102   | 86     |
|           | 1.65              | 1384  | 1172  | 737    | 624    | 478    | 375    | 313   | 216   | 168   | 151   | 127   | 104   | 88     |
|           | 1.60              | 1520  | 1280  | 782    | 644    | 500    | 396    | 328   | 232   | 174   | 160   | 134   | 106   | 90     |
| UPST 1000 | 1.80              |       |       | 765    | 660    | 526    | 400    | 355   | 247   | 194   | 165   | 149   | 119   | 97     |
|           | 1.75              |       | 1100  | 855    | 695    | 547    | 421    | 364   | 255   | 198   | 169   | 151   | 123   | 100    |
|           | 1.70              | 1600  | 1350  | 884    | 758    | 580    | 450    | 381   | 267   | 205   | 182   | 154   | 128   | 107    |
|           | 1.65              | 1730  | 1465  | 921    | 780    | 598    | 469    | 391   | 270   | 210   | 189   | 159   | 130   | 110    |
|           | 1.60              | 1900  | 1600  | 978    | 805    | 625    | 495    | 410   | 290   | 218   | 200   | 167   | 133   | 113    |
| UPST 1500 | 1.80              |       |       | 1148   | 990    | 789    | 600    | 533   | 371   | 291   | 248   | 224   | 179   | 146    |
|           | 1.75              |       | 1650  | 1283   | 1043   | 821    | 632    | 546   | 383   | 297   | 254   | 227   | 185   | 150    |
|           | 1.70              | 2400  | 2025  | 1326   | 1137   | 870    | 675    | 572   | 401   | 308   | 273   | 231   | 192   | 161    |
|           | 1.65              | 2595  | 2198  | 1382   | 1170   | 897    | 704    | 587   | 405   | 315   | 284   | 239   | 195   | 165    |
|           | 1.60              | 2850  | 2400  | 1467   | 1208   | 938    | 743    | 615   | 435   | 327   | 300   | 251   | 200   | 170    |

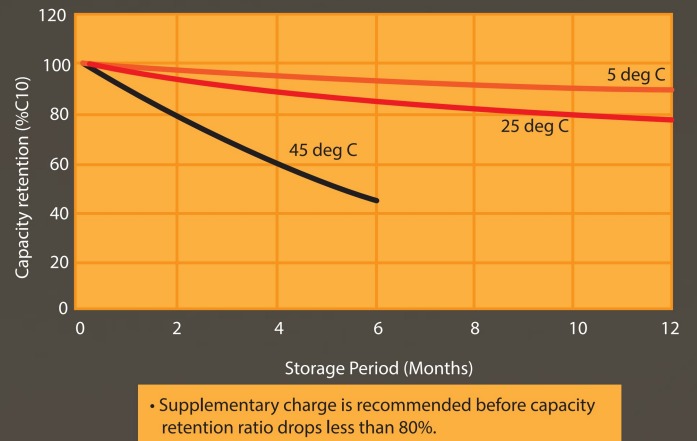


## Battery Characteristics

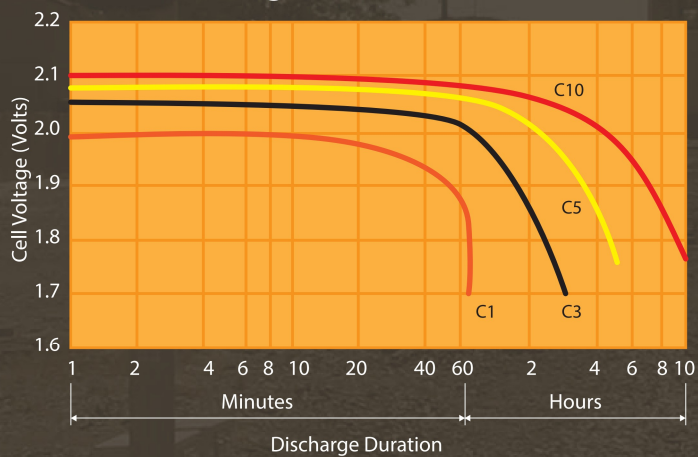
### Charge Characteristics



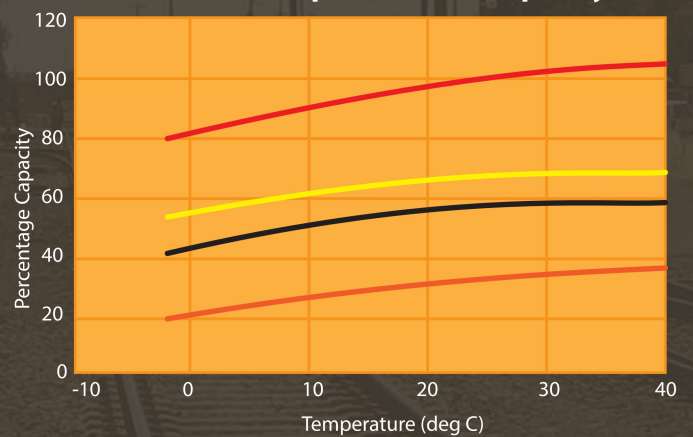
### Capacity Retention Characteristics



### Discharge Performance Curves



### Effect of Temperature on Capacity



Norway  
UK  
Canada  
Croatia  
Poland  
Greece  
Malta  
Israel  
Jordan  
Egypt  
Bahrain  
Qatar  
Peru  
Argentina  
Mali  
Nigeria  
Botswana  
South Africa  
Zambia  
Tanzania  
Mozambique  
Kenya  
Mauritius  
UAE

Sri Lanka  
Malaysia  
New Zealand  
Australia  
Singapore  
Indonesia  
Brunei  
Philippines  
Thailand  
Cambodia  
Vietnam  
Hong Kong  
Taiwan  
Bangladesh  
China  
Japan  
Korea  
Afghanistan  
Oman  
Kuwait  
Armenia  
Finland  
Germany  
Scotland



EXIDE\*



DYNEX

INDEX

CHLORIDE\*

SF SONIC™

\* Wherever we own the brand



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