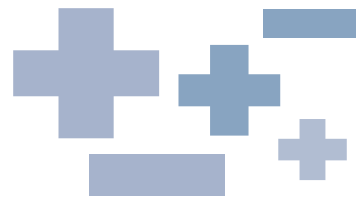


FIAMM

Industrial Batteries

ENDURLITE

LM series



FIAMM's **LM** battery range can be used in standby mode or for duties requiring repeated charging and discharging operations (cycling applications). The **LM** battery range is specially designed for difficult environments and special applications such as solar and long discharge rates. Its tubular positive plates, very reliable post seal and the fully insulated connections among cells, guarantee a long life, even in the worst operating conditions.

FIAMM has a program of continuous improvement, investing in manufacturing processes, equipment and technology.

FIAMM's Standby Battery factories are ISO 9001-2000 certified. Our continuous investment in battery technology is reflected by means of premium products that are of the highest quality and reliability.

FIAMM's **LM** tubular vented lead acid batteries are the ideal energy source for many different standby applications.

Technical Features

Positive Tubular Plates: with lead selenium alloy to reduce frequency of watering intervals. The tubular design prevents the loss of active material during operation, this result in a longer operating life and high performance.

Negative Plates: designed to have service life consistent with the positive plates. The alloy and curing process are designed so that porosity of active material is maintained during operation.

Electrolyte: high purity sulfuric acid solution with a specific gravity of 1.24 (± 0.01) at 77°F, lower specific gravity acid available upon request.

Separators: made of high quality microporous material, with low electrical resistance to achieve the lowest self discharge and highest efficiency.

Containers: injection molded from high quality transparent SAN (Styrene acrylonitrile) for easy cell status inspection.

Lids: made of opaque SAN. Flame retardant ABS is optional.

Vent Caps: effectively prevent acid spray from the cell when 'gassing' during boost charge. They are provided with ceramic filter and bayonet lock, designed to prevent any errant spark or flame from entering the cell.

Connectors: flexible, fully insulated cable connectors are bolted to the terminal with an insulated screw, having a probe hole on the top for electrical measurement.

Terminals: female threaded terminals (M10) ensure perfect contact and a low resistance with the flexible cable connectors.

Post Seals: high integrity post seal design to prevent electrolyte leakage and terminal corrosion.

Applications

Telecommunications
Solar and Wind Power Stations
Electric Utilities
Railway Signaling
Airport and Seaport Signaling

Product Features

- + Design Life: up to 20 years on float in temperature controlled environments
- + Very Low Maintenance
- + Excellent for cycling applications: up to 1500 cycles to 80% DOD

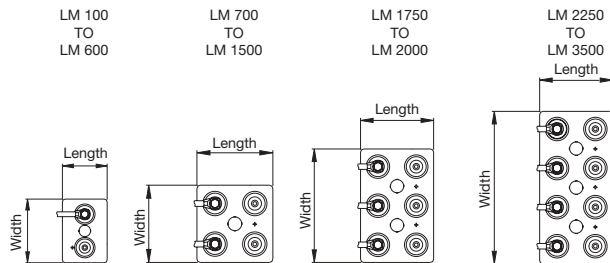
Standby Products

LM series

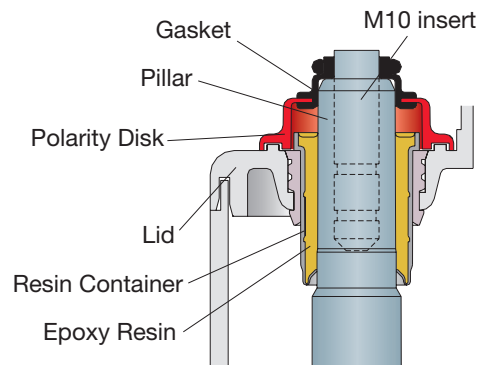
| CELL TYPE | DIN 40736 STANDARD Type | CAPACITY (Ah) at 77°F 8 hrs to 1.75 Vpc | DIMENSIONS | | | | | | WEIGHT | | ELECTROLYTE VOLUME (Sg 1.24) Gals | TERMINALS | |
|-----------|-------------------------|--|------------|-----|-------|-----|--------|-----|--------|-----|--------------------------------------|-----------|---|
| | | | Length | | Width | | Height | | lbs | kg | | + | - |
| | | | in | mm | in | mm | in | mm | | | | | |
| LM 100 | 2 OPzS 100 LA | 109 | 4.1 | 104 | 8.1 | 206 | 16.5 | 419 | 30.8 | 14 | 1.06 | 1 | 1 |
| LM 150 | 3 OPzS 150 LA | 164 | 4.1 | 104 | 8.1 | 206 | 16.5 | 419 | 35.3 | 16 | 0.98 | 1 | 1 |
| LM 200 | 4 OPzS 200 LA | 220 | 4.1 | 104 | 8.1 | 206 | 16.5 | 419 | 39.7 | 18 | 0.9 | 1 | 1 |
| LM 250 | 5 OPzS 250 LA | 274 | 4.9 | 125 | 8.1 | 206 | 16.5 | 419 | 46.3 | 21 | 1.22 | 1 | 1 |
| LM 300 | 6 OPzS 300 LA | 329 | 5.7 | 145 | 8.1 | 206 | 16.5 | 419 | 55.1 | 25 | 1.37 | 1 | 1 |
| LM 350 | 5 OPzS 350 LA | 390 | 4.9 | 125 | 8.1 | 206 | 21.1 | 536 | 63.9 | 29 | 1.56 | 1 | 1 |
| LM 420 | 6 OPzS 420 LA | 468 | 5.7 | 145 | 8.1 | 206 | 21.1 | 536 | 77.2 | 35 | 1.85 | 1 | 1 |
| LM 490 | 7 OPzS 490 LA | 546 | 6.5 | 165 | 8.1 | 206 | 21.1 | 536 | 88.2 | 40 | 2.06 | 1 | 1 |
| LM 600 | 6 OPzS 600 LA | 640 | 5.7 | 145 | 8.1 | 206 | 28 | 711 | 103.6 | 47 | 2.67 | 1 | 1 |
| LM 700 | 7 OPzS 700 LA | 746 | 8.3 | 210 | 7.5 | 191 | 28 | 711 | 132.3 | 60 | 3.70 | 2 | 2 |
| LM 800 | 8 OPzS 800 LA | 856 | 8.3 | 210 | 7.5 | 191 | 28 | 711 | 138.9 | 63 | 3.59 | 2 | 2 |
| LM 900 | 9 OPzS 900 LA | 960 | 8.3 | 210 | 9.2 | 234 | 28 | 711 | 163.1 | 74 | 4.76 | 2 | 2 |
| LM 1000 | 10 OPzS 1000 LA | 1064 | 8.3 | 210 | 9.2 | 234 | 28 | 711 | 169.8 | 77 | 4.50 | 2 | 2 |
| LM 1200 | 12 OPzS 1200 LA | 1280 | 8.3 | 210 | 10.8 | 274 | 28 | 711 | 198.4 | 90 | 5.34 | 2 | 2 |
| LM 1500 | 12 OPzS 1500 LA | 1648 | 8.3 | 210 | 10.8 | 274 | 33.9 | 861 | 249.1 | 113 | 5.97 | 2 | 2 |
| LM 1750 | 14 OPzS 1750 LA | 1920 | 8.4 | 214 | 15.7 | 399 | 32.9 | 837 | 326.3 | 148 | 9.38 | 3 | 3 |
| LM 1875 | 15 OPzS 1875 LA | 2056 | 8.4 | 214 | 15.7 | 399 | 32.9 | 837 | 335.1 | 152 | 8.98 | 3 | 3 |
| LM 2000 | 16 OPzS 2000 LA | 2192 | 8.4 | 214 | 15.7 | 399 | 32.9 | 837 | 343.9 | 156 | 8.48 | 3 | 3 |
| LM 2250 | 18 OPzS 2250 LA | 2464 | 8.4 | 214 | 19.2 | 488 | 32.9 | 837 | 414.5 | 188 | 11.5 | 4 | 4 |
| LM 2500 | 20 OPzS 2500 LA | 2744 | 8.4 | 214 | 19.2 | 488 | 32.9 | 837 | 432.1 | 196 | 10.67 | 4 | 4 |
| LM 3000 | 24 OPzS 3000 LA | 3288 | 8.4 | 214 | 22.7 | 577 | 32.9 | 837 | 504.9 | 229 | 13.40 | 4 | 4 |
| LM 3500 | 28 OPzS 3500 LA | 3544 | 8.4 | 214 | 22.7 | 577 | 32.9 | 837 | 540.1 | 245 | 12.20 | 4 | 4 |

Electrical Characteristics

- ✦ NOMINAL VOLTAGE: 2 V
- ✦ FLOAT VOLTAGE AT 77°F: 2.23 Vpc
- ✦ BOOST RECHARGE: 2.4 Vpc
- ✦ SELF DISCHARGE at 77°F: < 2% a month
- ✦ TERMINAL TORQUE 106 - 124 inlbs (12-14 Nm)



High Reliability Post Seal



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Industrial Batteries

ENDURLITE**LM series**

Rev. 010410

| CELL TYPE | Constant Current Discharge Rates Amperes to 1.75 Vpc at 77°F (25°C) Sg 1.24 | | | | | | | | | | | |
|-----------|---|------|------|-------|------|------|------|------|------|------|------|------|
| | MINUTES | | | HOURS | | | | | | | | |
| | 1 | 30 | 60 | 1.5 | 2 | 3 | 4 | 5 | 8 | 10 | 12 | 20 |
| LM 100 | 100 | 77.3 | 55.0 | 43.8 | 36.6 | 28.1 | 23.3 | 19.8 | 13.7 | 11.4 | 9.72 | 6.31 |
| LM 150 | 150 | 116 | 82.5 | 65.7 | 54.8 | 42.2 | 34.9 | 29.7 | 20.6 | 17.1 | 14.6 | 9.47 |
| LM 200 | 200 | 155 | 110 | 87.6 | 73.1 | 56.2 | 46.5 | 39.6 | 27.5 | 22.9 | 19.4 | 12.6 |
| LM 250 | 250 | 193 | 138 | 109 | 91.4 | 70.3 | 58.1 | 49.4 | 34.3 | 28.6 | 24.3 | 15.8 |
| LM 300 | 300 | 232 | 165 | 131 | 110 | 84.4 | 69.8 | 59.3 | 41.2 | 34.3 | 29.2 | 18.9 |
| LM 350 | 313 | 252 | 190 | 153 | 129 | 99.3 | 81.6 | 69.7 | 48.9 | 41.1 | 34.9 | 22.1 |
| LM 420 | 375 | 302 | 228 | 184 | 155 | 119 | 97.9 | 83.6 | 58.7 | 49.3 | 41.9 | 26.5 |
| LM 490 | 438 | 353 | 266 | 214 | 180 | 139 | 114 | 97.5 | 68.5 | 57.5 | 48.9 | 30.9 |
| LM 600 | 464 | 393 | 309 | 253 | 216 | 165 | 136 | 115 | 80.0 | 66.4 | 56.4 | 36.7 |
| LM 700 | 541 | 459 | 361 | 296 | 252 | 193 | 158 | 134 | 93.3 | 77.4 | 65.8 | 42.9 |
| LM 800 | 619 | 524 | 412 | 338 | 288 | 221 | 181 | 153 | 107 | 88.5 | 75.2 | 49.0 |
| LM 900 | 696 | 590 | 464 | 380 | 324 | 248 | 204 | 172 | 120 | 99.6 | 84.6 | 55.1 |
| LM 1000 | 774 | 655 | 515 | 422 | 360 | 276 | 226 | 192 | 133 | 111 | 94.0 | 61.2 |
| LM 1200 | 928 | 786 | 618 | 507 | 432 | 331 | 271 | 230 | 160 | 133 | 113 | 73.5 |
| LM 1500 | 808 | 797 | 711 | 600 | 520 | 407 | 337 | 288 | 206 | 174 | 148 | 93.5 |
| LM 1750 | 943 | 930 | 829 | 700 | 606 | 475 | 393 | 335 | 240 | 204 | 173 | 109 |
| LM 1875 | 1010 | 997 | 888 | 750 | 649 | 509 | 421 | 359 | 257 | 218 | 185 | 117 |
| LM 2000 | 1077 | 1063 | 948 | 800 | 693 | 543 | 450 | 383 | 274 | 233 | 198 | 125 |
| LM 2250 | 1212 | 1196 | 1066 | 900 | 779 | 611 | 506 | 431 | 308 | 262 | 222 | 140 |
| LM 2500 | 1347 | 1329 | 1185 | 1000 | 866 | 679 | 562 | 479 | 343 | 291 | 247 | 156 |
| LM 3000 | 1616 | 1594 | 1421 | 1200 | 1039 | 814 | 674 | 575 | 411 | 349 | 297 | 187 |
| LM 3500 | 1885 | 1860 | 1658 | 1400 | 1212 | 945 | 764 | 642 | 443 | 366 | 311 | 198 |

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Industrial Batteries

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