

MARATHON®



SPECIFICATIONS

Top Terminal Batteries

EXIDE®
TECHNOLOGIES
INDUSTRIAL ENERGY

From the World Leader in VRLA Battery Technology

Designed for durability in Telecommunications and Electric Utility applications, the **TOP Terminal MARATHON®** series provides high performance and reliability in long duration discharge applications. The **MARATHON®** family of batteries highlights another example of Exide Technologies Industrial Energy's extensive experience and world wide leadership in VRLA technology.

"Designed in" Quality Manufacturing

Quality manufacturing processes for the **MARATHON®** series batteries incorporate the industry's most advanced technologies including: an automated helium leak detection system, a computer controlled "fill by weight" acid filler, and a temperature controlled water bath formation process. Each and every unit is capacity tested.

High Performance MARATHON® Series Features

- Standard: Reinforced polypropylene container and cover.
- Optional: Flame-retardant reinforced container and cover compliant with UL94 V-0.
- Integrated Flash-arrester ultrasonically welded into cover.
- Patented "Diamond Side-Wall" design to maintain structural integrity in higher operating temperatures.
- Heat sealed case-to-cover bond to ensure a leak proof seal.
- High-Compression Absorbent Glass Mat (AGM) technology for greater than 99% recombination efficiency.
- High-tin, calcium, silver, lead positive plate design for maximum service float life; 10 year design life @ 25°C (77°F).
- Heavy duty copper alloy terminals for ease of assembly and reduced maintenance.
- Reliable one-way, self-resealing safety vents.
- Multicell design for faster installation and reduced maintenance.
- Horizontal or vertical operation.
- Removable carry handles for ease of installation.

Applications

MARATHON® series batteries incorporate Exide Technologies Industrial Energy's advanced VRLA technology designed for long life and high performance in:

Telecommunications

- Distributed Power
- PCS
- Cellular
- Broadband

Electric Utility

- Switchgear Control Power
- Communications



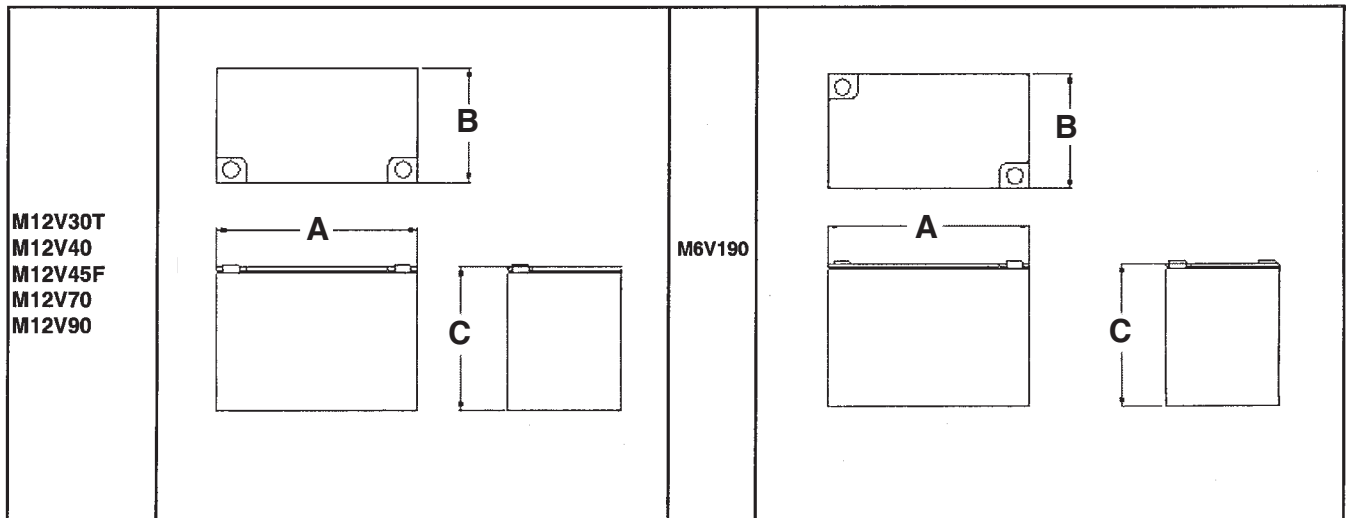
MARATHON® Specifications

| Model Number [#] | Voltage | Capacity (AH) | | Nominal Dimensions | | | | | | Nominal Weight | |
|---------------------------|---------|-------------------------|--------------------------|--------------------|------|------|-------------|-----|-----|----------------|------|
| | | 8 Hr To 1.75 VPC @ 25°C | 10 hr To 1.80 VPC @ 20°C | Inches | | | Millimeters | | | lbs. | Kg |
| | | | | A | B | *C | A | B | *C | | |
| M12V30T [%] | 12 | 28 | 28 | 6.75 | 5.13 | 6.90 | 171 | 130 | 175 | 24 | 10.7 |
| M12V40 | 12 | 40 | 37 | 7.81 | 6.58 | 7.01 | 198 | 167 | 178 | 39 | 17.8 |
| M12V45F [%] | 12 | 46 | 45 | 8.68 | 4.78 | 9.58 | 220 | 121 | 243 | 38 | 17.5 |
| M12V70 | 12 | 72 | 71 | 10.25 | 6.85 | 8.80 | 260 | 174 | 224 | 61 | 27.8 |
| M12V90 | 12 | 90 | 88 | 12.05 | 6.85 | 8.80 | 306 | 174 | 224 | 72 | 32.8 |
| M6V190 | 6 | 190 | 186 | 12.05 | 6.85 | 8.80 | 306 | 174 | 224 | 74 | 33.5 |

* Bolt, washer, and connector typically increase height by 0.45 in. (11 mm)

Add suffix "F" to model number for flame retardant version OPTION

% Available in flame retardant version ONLY



MARATHON® Electrical Data

| Model Number | Short Circuit Current (Amps) | Internal Resistance (mOhms) |
|--------------|------------------------------|-----------------------------|
| M12V30T | 1576 | 7.7 |
| M12V40 | 2341 | 5.3 |
| M12V45F | 2162 | 5.4 |
| M12V70 | 3271 | 3.7 |
| M12V90 | 3365 | 3.7 |
| M6V190 | 6343 | 1.0 |

Float Voltage & Charging

Constant Voltage charging is recommended

Recommended float voltage: 2.27 VPC @ 25°C (77°F)

Float Voltage Range: 2.25 to 2.30 VPC @ 25°C (77°F)

Equalize voltage: 2.35 VPC for 24 Hours

NOTE: Design and/or specifications subject to change without notice. If questions arise, contact your local GNB sales representative for clarification

MARATHON®

MARATHON® Performance Specifications
Amperes @ 25°C (77°F)

| Model Number | Time | | | | | | | | | | | | | | |
|--------------|-------|-------|-------|------|------|------|------|------|------|------|--------|------|--------|-------|--------|
| | 24 hr | 12 hr | 10 hr | 9 hr | 8 hr | 7 hr | 6 hr | 5 hr | 4 hr | 3 hr | 2.5 hr | 2 hr | 1.5 hr | 1 hr | 0.5 hr |
| M12V30T | 1.3 | 2.5 | 2.9 | 3.2 | 3.6 | 4.1 | 4.7 | 5.5 | 6.6 | 8.4 | 9.8 | 11.9 | 15.1 | 21.2 | 36.9 |
| M12V40(F) | 1.7 | 3.4 | 4.1 | 4.4 | 5.0 | 5.6 | 6.4 | 7.6 | 9.3 | 11.9 | 14.0 | 16.9 | 21.5 | 30.5 | 51.3 |
| M12V45F | 2.1 | 4.0 | 4.7 | 5.2 | 5.8 | 6.5 | 7.5 | 8.7 | 10.6 | 13.5 | 15.8 | 19.1 | 24.0 | 33.2 | 57.8 |
| M12V70(F) | 3.2 | 6.2 | 7.4 | 8.2 | 9.1 | 10.1 | 11.6 | 13.4 | 16.2 | 20.6 | 24.0 | 28.9 | 36.8 | 51.6 | 90.8 |
| M12V90(F) | 4.2 | 7.8 | 9.2 | 10.1 | 11.2 | 12.7 | 14.3 | 16.7 | 20.2 | 25.9 | 30.2 | 36.5 | 46.6 | 65.7 | 107.0 |
| M6V190(F) | 9.1 | 16.6 | 19.5 | 21.4 | 23.7 | 26.7 | 30.6 | 35.9 | 43.7 | 56.0 | 65.6 | 79.5 | 102.0 | 144.9 | 246.0 |

| Model Number | Time | | | | | | | | | | | | | | |
|--------------|-------|-------|-------|------|------|------|------|------|------|------|--------|------|--------|-------|--------|
| | 24 hr | 12 hr | 10 hr | 9 hr | 8 hr | 7 hr | 6 hr | 5 hr | 4 hr | 3 hr | 2.5 hr | 2 hr | 1.5 hr | 1 hr | 0.5 hr |
| M12V30T | 1.3 | 2.4 | 2.9 | 3.2 | 3.6 | 4.1 | 4.7 | 5.4 | 6.6 | 8.3 | 9.7 | 11.7 | 14.9 | 21.0 | 36.6 |
| M12V40(F) | 1.7 | 3.4 | 4.0 | 4.3 | 4.9 | 5.5 | 6.3 | 7.5 | 9.2 | 11.8 | 13.9 | 16.8 | 21.3 | 30.2 | 50.7 |
| M12V45F | 2.1 | 4.0 | 4.7 | 5.2 | 5.7 | 6.5 | 7.5 | 8.7 | 10.5 | 13.5 | 15.7 | 18.9 | 23.8 | 32.9 | 57.0 |
| M12V70(F) | 3.2 | 6.2 | 7.4 | 8.1 | 9.0 | 10.0 | 11.4 | 13.3 | 16.0 | 20.4 | 23.8 | 28.7 | 36.5 | 51.3 | 90.0 |
| M12V90(F) | 4.1 | 7.7 | 9.1 | 10.0 | 11.2 | 12.6 | 14.2 | 16.6 | 20.0 | 25.5 | 29.8 | 36.0 | 45.9 | 64.7 | 105.2 |
| M6V190(F) | 9.0 | 16.5 | 19.4 | 21.2 | 23.6 | 26.5 | 30.3 | 35.6 | 43.3 | 55.5 | 65.0 | 78.8 | 101.1 | 143.5 | 241.6 |

| Model Number | Time | | | | | | | | | | | | | | |
|--------------|-------|-------|-------|------|------|------|------|------|------|------|--------|------|--------|-------|--------|
| | 24 hr | 12 hr | 10 hr | 9 hr | 8 hr | 7 hr | 6 hr | 5 hr | 4 hr | 3 hr | 2.5 hr | 2 hr | 1.5 hr | 1 hr | 0.5 hr |
| M12V30T | 1.3 | 2.4 | 2.9 | 3.2 | 3.6 | 4.0 | 4.6 | 5.4 | 6.5 | 8.3 | 9.6 | 11.6 | 14.8 | 20.8 | 36.0 |
| M12V40(F) | 1.7 | 3.4 | 4.0 | 4.3 | 4.9 | 5.5 | 6.3 | 7.5 | 9.2 | 11.8 | 13.8 | 16.7 | 21.2 | 30.0 | 50.0 |
| M12V45F | 2.1 | 3.9 | 4.7 | 5.1 | 5.7 | 6.4 | 7.4 | 8.6 | 10.4 | 13.3 | 15.5 | 18.8 | 23.6 | 32.5 | 56.0 |
| M12V70(F) | 3.2 | 6.2 | 7.4 | 8.0 | 8.9 | 9.9 | 11.3 | 13.2 | 15.9 | 20.3 | 23.6 | 28.5 | 36.3 | 51.0 | 89.0 |
| M12V90(F) | 4.1 | 7.7 | 9.1 | 10.0 | 11.1 | 12.5 | 14.1 | 16.5 | 19.9 | 25.3 | 29.5 | 35.7 | 45.5 | 64.0 | 103.3 |
| M6V190(F) | 8.9 | 16.4 | 19.2 | 21.1 | 23.4 | 26.3 | 30.1 | 35.3 | 43.0 | 55.0 | 64.3 | 77.9 | 99.9 | 142.0 | 236.5 |

| Model Number | Time | | | | | | | | | | | | | | |
|--------------|-------|-------|-------|------|------|------|------|------|------|------|--------|------|--------|-------|--------|
| | 24 hr | 12 hr | 10 hr | 9 hr | 8 hr | 7 hr | 6 hr | 5 hr | 4 hr | 3 hr | 2.5 hr | 2 hr | 1.5 hr | 1 hr | 0.5 hr |
| M12V30T | 1.3 | 2.4 | 2.9 | 3.2 | 3.5 | 4.0 | 4.6 | 5.3 | 6.4 | 8.2 | 9.5 | 11.4 | 14.6 | 20.5 | 35.4 |
| M12V40(F) | 1.7 | 3.4 | 4.0 | 4.3 | 4.8 | 5.4 | 6.2 | 7.4 | 9.1 | 11.7 | 13.7 | 16.6 | 21.1 | 29.9 | 49.6 |
| M12V45F | 2.1 | 3.9 | 4.6 | 5.1 | 5.6 | 6.4 | 7.3 | 8.5 | 10.3 | 13.2 | 15.4 | 18.6 | 23.3 | 32.0 | 54.8 |
| M12V70(F) | 3.1 | 6.1 | 7.3 | 8.0 | 8.8 | 9.9 | 11.2 | 13.1 | 15.8 | 20.1 | 23.4 | 28.2 | 35.9 | 50.6 | 87.4 |
| M12V90(F) | 4.1 | 7.6 | 9.0 | 9.9 | 11.0 | 12.4 | 14.0 | 16.3 | 19.7 | 25.1 | 29.3 | 35.4 | 45.1 | 63.5 | 101.8 |
| M6V190(F) | 8.8 | 16.2 | 19.0 | 20.9 | 23.2 | 26.1 | 29.9 | 35.1 | 42.6 | 54.5 | 63.6 | 76.9 | 98.5 | 139.5 | 231.0 |

| Model Number | Time | | | | | | | | | | | | | | |
|--------------|-------|-------|-------|------|------|------|------|------|------|------|--------|------|--------|-------|--------|
| | 24 hr | 12 hr | 10 hr | 9 hr | 8 hr | 7 hr | 6 hr | 5 hr | 4 hr | 3 hr | 2.5 hr | 2 hr | 1.5 hr | 1 hr | 0.5 hr |
| M12V30T | 1.2 | 2.4 | 2.8 | 3.1 | 3.5 | 3.9 | 4.5 | 5.2 | 6.3 | 8.0 | 9.4 | 11.3 | 14.4 | 20.2 | 34.8 |
| M12V40(F) | 1.6 | 3.3 | 3.9 | 4.2 | 4.7 | 5.3 | 6.1 | 7.3 | 9.0 | 11.6 | 13.6 | 16.4 | 20.9 | 29.5 | 48.5 |
| M12V45F | 2.0 | 3.8 | 4.5 | 5.0 | 5.6 | 6.3 | 7.3 | 8.4 | 10.2 | 13.0 | 15.2 | 18.3 | 22.9 | 31.4 | 53.5 |
| M12V70(F) | 3.1 | 6.0 | 7.1 | 7.9 | 8.8 | 9.8 | 11.1 | 12.9 | 15.6 | 19.9 | 23.2 | 27.9 | 35.6 | 50.1 | 85.6 |
| M12V90(F) | 4.0 | 7.5 | 8.9 | 9.8 | 10.8 | 12.2 | 13.8 | 16.1 | 19.4 | 24.7 | 28.8 | 34.8 | 44.3 | 62.4 | 100.3 |
| M6V190(F) | 8.6 | 16.0 | 18.8 | 20.7 | 23.0 | 25.9 | 29.6 | 34.8 | 42.2 | 53.7 | 62.7 | 75.8 | 96.8 | 136.5 | 224.3 |

MARATHON® Performance Specifications
Amperes @ 25°C (77°F)

| 1.85 Final VPC | Model Number | Time | | | | | | | | | | | | | | |
|----------------------|-----------------|-------|-------|-------|------|------|------|------|------|------|------|--------|------|--------|-------|--------|
| | | 24 hr | 12 hr | 10 hr | 9 hr | 8 hr | 7 hr | 6 hr | 5 hr | 4 hr | 3 hr | 2.5 hr | 2 hr | 1.5 hr | 1 hr | 0.5 hr |
| | M12V30T | 1.2 | 2.3 | 2.8 | 3.1 | 3.4 | 3.9 | 4.5 | 5.1 | 6.2 | 7.9 | 9.2 | 11.1 | 14.1 | 19.9 | 34.0 |
| | M12V40(F) | 1.6 | 3.3 | 3.9 | 4.2 | 4.7 | 5.3 | 6.1 | 7.2 | 8.8 | 11.4 | 13.3 | 16.0 | 20.4 | 28.8 | 47.2 |
| | M12V45F | 2.0 | 3.8 | 4.5 | 4.9 | 5.5 | 6.2 | 7.1 | 8.3 | 10.0 | 12.8 | 14.9 | 18.0 | 22.5 | 30.7 | 52.0 |
| | M12V70(F) | 3.0 | 5.9 | 7.0 | 7.7 | 8.6 | 9.6 | 10.9 | 12.8 | 15.4 | 19.6 | 22.9 | 27.6 | 35.1 | 49.4 | 83.0 |
| | M12V90(F) | 4.0 | 7.4 | 8.7 | 9.6 | 10.7 | 12.0 | 13.6 | 15.8 | 19.1 | 24.3 | 28.3 | 34.2 | 43.6 | 61.3 | 98.0 |
| | M6V190(F) | 8.5 | 15.7 | 18.5 | 20.3 | 22.6 | 25.4 | 29.2 | 34.4 | 41.5 | 52.7 | 61.5 | 74.2 | 94.6 | 133.1 | 216.6 |

| 1.87 Final VPC | Model Number | Time | | | | | | | | | | | | | | |
|----------------------|-----------------|-------|-------|-------|------|------|------|------|------|------|------|--------|------|--------|-------|--------|
| | | 24 hr | 12 hr | 10 hr | 9 hr | 8 hr | 7 hr | 6 hr | 5 hr | 4 hr | 3 hr | 2.5 hr | 2 hr | 1.5 hr | 1 hr | 0.5 hr |
| | M12V30T | 1.2 | 2.3 | 2.7 | 3.0 | 3.3 | 3.7 | 4.3 | 5.0 | 6.0 | 7.6 | 8.9 | 10.7 | 13.7 | 19.3 | 33.0 |
| | M12V40(F) | 1.6 | 3.1 | 3.6 | 4.0 | 4.5 | 5.1 | 5.8 | 6.9 | 8.4 | 10.9 | 12.7 | 15.4 | 19.5 | 27.3 | 44.6 |
| | M12V45F | 2.0 | 3.7 | 4.3 | 4.8 | 5.3 | 6.0 | 6.9 | 8.0 | 9.7 | 12.4 | 14.5 | 17.5 | 21.8 | 29.6 | 49.5 |
| | M12V70(F) | 3.0 | 5.7 | 6.8 | 7.5 | 8.3 | 9.3 | 10.6 | 12.4 | 14.9 | 18.9 | 22.0 | 26.6 | 33.8 | 47.4 | 78.6 |
| | M12V90(F) | 3.9 | 7.2 | 8.5 | 9.3 | 10.3 | 11.6 | 13.1 | 15.3 | 18.5 | 23.5 | 27.4 | 33.0 | 41.9 | 58.8 | 93.7 |
| | M6V190(F) | 8.2 | 15.2 | 17.9 | 19.7 | 21.8 | 24.6 | 28.2 | 33.1 | 40.0 | 50.8 | 59.2 | 71.3 | 90.7 | 127.3 | 204.3 |

| 1.90 Final VPC | Model Number | Time | | | | | | | | | | | | | | |
|----------------------|-----------------|-------|-------|-------|------|------|------|------|------|------|------|--------|------|--------|-------|--------|
| | | 24 hr | 12 hr | 10 hr | 9 hr | 8 hr | 7 hr | 6 hr | 5 hr | 4 hr | 3 hr | 2.5 hr | 2 hr | 1.5 hr | 1 hr | 0.5 hr |
| | M12V30T | 1.1 | 2.2 | 2.6 | 2.8 | 3.1 | 3.6 | 4.1 | 4.7 | 5.7 | 7.2 | 8.4 | 10.2 | 13.0 | 18.3 | 31.0 |
| | M12V40(F) | 1.5 | 2.9 | 3.4 | 3.8 | 4.2 | 4.8 | 5.6 | 6.6 | 8.0 | 10.4 | 12.2 | 14.7 | 18.6 | 25.9 | 42.4 |
| | M12V45F | 1.9 | 3.5 | 4.1 | 4.5 | 5.0 | 5.7 | 6.5 | 7.6 | 9.3 | 12.0 | 13.9 | 16.7 | 20.7 | 28.0 | 45.9 |
| | M12V70(F) | 2.8 | 5.4 | 6.4 | 7.1 | 7.9 | 9.0 | 10.1 | 11.7 | 14.1 | 17.9 | 20.8 | 25.1 | 31.8 | 44.4 | 72.5 |
| | M12V90(F) | 3.7 | 6.8 | 8.0 | 8.8 | 9.8 | 11.0 | 12.6 | 14.6 | 17.5 | 22.2 | 25.8 | 31.1 | 39.5 | 55.2 | 87.6 |
| | M6V190(F) | 7.8 | 14.5 | 17.0 | 18.7 | 20.8 | 23.4 | 26.8 | 31.5 | 37.8 | 47.9 | 55.7 | 67.0 | 84.9 | 118.7 | 187.8 |

| 1.92 Final VPC | Model Number | Time | | | | | | | | | | | | | | |
|----------------------|-----------------|-------|-------|-------|------|------|------|------|------|------|------|--------|------|--------|-------|--------|
| | | 24 hr | 12 hr | 10 hr | 9 hr | 8 hr | 7 hr | 6 hr | 5 hr | 4 hr | 3 hr | 2.5 hr | 2 hr | 1.5 hr | 1 hr | 0.5 hr |
| | M12V30T | 1.1 | 2.0 | 2.4 | 2.6 | 2.9 | 3.3 | 3.8 | 4.5 | 5.4 | 6.9 | 8.0 | 9.6 | 12.3 | 17.2 | 29.1 |
| | M12V40(F) | 1.4 | 2.8 | 3.2 | 3.6 | 4.0 | 4.5 | 5.2 | 6.2 | 7.6 | 9.8 | 11.5 | 13.9 | 17.6 | 24.4 | 39.8 |
| | M12V45F | 1.8 | 3.3 | 3.9 | 4.3 | 4.8 | 5.4 | 6.1 | 7.2 | 8.8 | 11.4 | 13.2 | 15.7 | 19.4 | 26.2 | 42.6 |
| | M12V70(F) | 2.7 | 5.1 | 6.1 | 6.7 | 7.4 | 8.4 | 9.5 | 11.1 | 13.3 | 16.8 | 19.5 | 23.5 | 29.7 | 41.4 | 64.6 |
| | M12V90(F) | 3.6 | 6.5 | 7.6 | 8.3 | 9.2 | 10.3 | 11.8 | 13.8 | 16.7 | 21.2 | 24.6 | 29.6 | 37.2 | 51.4 | 81.9 |
| | M6V190(F) | 7.5 | 13.7 | 16.1 | 17.7 | 19.6 | 22.1 | 25.3 | 29.7 | 36.0 | 45.1 | 52.3 | 62.8 | 79.4 | 110.4 | 146.8 |

| 1.94 Final VPC | Model Number | Time | | | | | | | | | | | | | | |
|----------------------|-----------------|-------|-------|-------|------|------|------|------|------|------|------|--------|------|--------|-------|--------|
| | | 24 hr | 12 hr | 10 hr | 9 hr | 8 hr | 7 hr | 6 hr | 5 hr | 4 hr | 3 hr | 2.5 hr | 2 hr | 1.5 hr | 1 hr | 0.5 hr |
| | M12V30T | 1.0 | 1.9 | 2.2 | 2.5 | 2.8 | 3.1 | 3.6 | 4.2 | 5.1 | 6.4 | 7.5 | 9.0 | 11.5 | 16.1 | 26.8 |
| | M12V40(F) | 1.3 | 2.5 | 3.0 | 3.3 | 3.7 | 4.2 | 4.9 | 5.7 | 7.0 | 9.1 | 10.7 | 12.9 | 16.3 | 22.5 | 36.7 |
| | M12V45F | 1.7 | 3.1 | 3.7 | 4.1 | 4.5 | 5.1 | 5.8 | 6.8 | 8.3 | 10.8 | 12.4 | 14.8 | 18.2 | 24.5 | 39.4 |
| | M12V70(F) | 2.5 | 4.8 | 5.7 | 6.3 | 7.0 | 8.0 | 9.0 | 10.4 | 12.5 | 15.8 | 18.3 | 21.9 | 27.6 | 38.4 | 54.9 |
| | M12V90(F) | 3.3 | 6.1 | 7.1 | 7.8 | 8.7 | 9.7 | 11.1 | 13.0 | 15.8 | 20.2 | 23.5 | 28.2 | 35.1 | 47.8 | 76.4 |
| | M6V190(F) | 7.0 | 13.0 | 15.3 | 16.7 | 18.6 | 20.9 | 23.9 | 28.1 | 33.5 | 42.3 | 49.0 | 58.6 | 73.8 | 102.3 | 128.6 |

MARATHON® Performance Specifications
Watts per Cell @ 25°C (77°F)

| | Model Number | Time | | | | | | | | | | | |
|----------------------|--------------|-------|-------|-------|------|------|------|------|-------|-------|--------|-------|--------|
| | | 24 hr | 12 hr | 10 hr | 9 hr | 8 hr | 6 hr | 4 hr | 3 hr | 2 hr | 1.5 hr | 1 hr | 0.5 hr |
| 1.75 Final VPC | M12V30T | 2.4 | 4.8 | 5.7 | 6.4 | 7.0 | 9.0 | 12.6 | 16.1 | 22.7 | 29.0 | 40.8 | 71.6 |
| | M12V40(F) | 2.9 | 5.5 | 6.6 | 7.2 | 8.1 | 10.6 | 15.4 | 20.1 | 29.2 | 38.0 | 54.6 | 96.5 |
| | M12V45F | 4.2 | 7.8 | 9.2 | 10.1 | 11.2 | 14.5 | 20.4 | 26.1 | 36.7 | 46.5 | 65.0 | 107.8 |
| | M12V70(F) | 6.7 | 12.6 | 14.9 | 16.4 | 18.3 | 23.2 | 32.3 | 40.8 | 56.8 | 71.8 | 100.0 | 174.0 |
| | M12V90(F) | 7.7 | 14.9 | 17.7 | 19.6 | 21.9 | 27.7 | 39.3 | 50.3 | 71.2 | 91.0 | 128.7 | 209.0 |
| | M6V190(F) | 17.8 | 33.3 | 39.2 | 43.2 | 48.0 | 62.4 | 90.0 | 112.4 | 155.8 | 197.1 | 274.7 | 465.0 |

| | Model Number | Time | | | | | | | | | | | |
|----------------------|--------------|-------|-------|-------|------|------|------|------|-------|-------|--------|-------|--------|
| | | 24 hr | 12 hr | 10 hr | 9 hr | 8 hr | 6 hr | 4 hr | 3 hr | 2 hr | 1.5 hr | 1 hr | 0.5 hr |
| 1.78 Final VPC | M12V30T | 2.4 | 4.8 | 5.7 | 6.3 | 7.0 | 8.9 | 12.6 | 16.0 | 22.5 | 28.7 | 40.5 | 71.0 |
| | M12V40(F) | 2.8 | 5.5 | 6.5 | 7.2 | 8.1 | 10.5 | 15.3 | 20.0 | 29.1 | 37.8 | 54.3 | 96.0 |
| | M12V45F | 4.1 | 7.7 | 9.1 | 10.0 | 11.2 | 14.5 | 20.3 | 25.9 | 36.4 | 46.2 | 64.5 | 106.6 |
| | M12V70(F) | 6.7 | 12.6 | 14.8 | 16.3 | 18.2 | 23.0 | 32.1 | 40.6 | 56.5 | 71.5 | 99.5 | 172.0 |
| | M12V90(F) | 7.6 | 14.8 | 17.5 | 19.4 | 21.7 | 27.5 | 38.9 | 49.8 | 70.4 | 90.0 | 127.3 | 206.0 |
| | M6V190(F) | 17.6 | 33.0 | 38.9 | 42.8 | 47.6 | 61.8 | 89.3 | 111.1 | 154.5 | 195.4 | 272.0 | 456.1 |

| | Model Number | Time | | | | | | | | | | | |
|----------------------|--------------|-------|-------|-------|------|------|------|------|-------|-------|--------|-------|--------|
| | | 24 hr | 12 hr | 10 hr | 9 hr | 8 hr | 6 hr | 4 hr | 3 hr | 2 hr | 1.5 hr | 1 hr | 0.5 hr |
| 1.80 Final VPC | M12V30T | 2.4 | 4.7 | 5.7 | 6.3 | 7.0 | 8.9 | 12.5 | 15.9 | 22.4 | 28.6 | 40.3 | 70.4 |
| | M12V40(F) | 2.8 | 5.5 | 6.5 | 7.2 | 8.0 | 10.5 | 15.3 | 19.9 | 29.0 | 37.6 | 54.0 | 95.1 |
| | M12V45F | 4.1 | 7.7 | 9.1 | 10.0 | 11.1 | 14.4 | 20.2 | 25.7 | 36.0 | 45.7 | 64.0 | 105.2 |
| | M12V70(F) | 6.7 | 12.5 | 14.8 | 16.2 | 18.1 | 23.0 | 31.9 | 40.4 | 56.2 | 71.0 | 98.9 | 170.0 |
| | M12V90(F) | 7.6 | 14.7 | 17.4 | 19.3 | 21.6 | 27.3 | 38.6 | 49.4 | 69.8 | 89.2 | 126.2 | 203.1 |
| | M6V190(F) | 17.5 | 32.8 | 38.7 | 42.5 | 47.3 | 61.4 | 88.7 | 110.4 | 153.4 | 193.7 | 269.0 | 447.1 |

| | Model Number | Time | | | | | | | | | | | |
|----------------------|--------------|-------|-------|-------|------|------|------|------|-------|-------|--------|-------|--------|
| | | 24 hr | 12 hr | 10 hr | 9 hr | 8 hr | 6 hr | 4 hr | 3 hr | 2 hr | 1.5 hr | 1 hr | 0.5 hr |
| 1.83 Final VPC | M12V30T | 2.4 | 4.7 | 5.6 | 6.2 | 6.8 | 8.7 | 12.3 | 15.6 | 22.0 | 28.0 | 39.3 | 68.2 |
| | M12V40(F) | 2.8 | 5.5 | 6.5 | 7.2 | 8.0 | 10.4 | 15.2 | 19.8 | 28.7 | 37.3 | 53.3 | 93.5 |
| | M12V45F | 4.0 | 7.6 | 8.9 | 9.8 | 10.9 | 14.2 | 19.7 | 25.0 | 35.1 | 44.5 | 62.3 | 101.3 |
| | M12V70(F) | 6.5 | 12.2 | 14.4 | 15.9 | 17.7 | 22.6 | 31.3 | 39.5 | 55.0 | 69.6 | 96.9 | 164.0 |
| | M12V90(F) | 7.4 | 14.3 | 17.1 | 18.9 | 21.1 | 26.8 | 37.7 | 48.2 | 67.9 | 86.7 | 122.2 | 195.1 |
| | M6V190(F) | 17.2 | 32.1 | 37.8 | 41.6 | 46.2 | 59.9 | 86.2 | 108.5 | 151.0 | 189.2 | 260.0 | 424.4 |

MARATHON®

MARATHON® Performance Specifications
Watts per Cell @ 25°C (77°F)

| 1.85 Final VPC | Model Number | Time | | | | | | | | | | | |
|----------------------|-----------------|-------|-------|-------|------|------|------|------|-------|-------|--------|-------|--------|
| | | 24 hr | 12 hr | 10 hr | 9 hr | 8 hr | 6 hr | 4 hr | 3 hr | 2 hr | 1.5 hr | 1 hr | 0.5 hr |
| | M12V30T | 2.4 | 4.6 | 5.5 | 6.1 | 6.8 | 8.6 | 12.1 | 15.4 | 21.7 | 27.6 | 38.8 | 67.2 |
| | M12V40(F) | 2.8 | 5.4 | 6.5 | 7.1 | 8.0 | 10.4 | 15.1 | 19.7 | 28.5 | 37.0 | 52.8 | 92.0 |
| | M12V45F | 4.0 | 7.4 | 8.8 | 9.7 | 10.8 | 14.0 | 19.4 | 24.6 | 34.5 | 43.7 | 60.9 | 98.7 |
| | M12V70(F) | 6.5 | 12.1 | 14.2 | 15.7 | 17.4 | 22.3 | 30.9 | 39.0 | 54.1 | 68.5 | 95.4 | 160.0 |
| | M12V90(F) | 7.3 | 14.1 | 16.8 | 18.6 | 20.8 | 26.4 | 37.1 | 47.3 | 66.6 | 84.9 | 119.6 | 190.0 |
| | M6V190(F) | 16.9 | 31.7 | 37.4 | 41.1 | 45.8 | 59.3 | 85.0 | 107.0 | 149.0 | 186.2 | 254.9 | 410.1 |

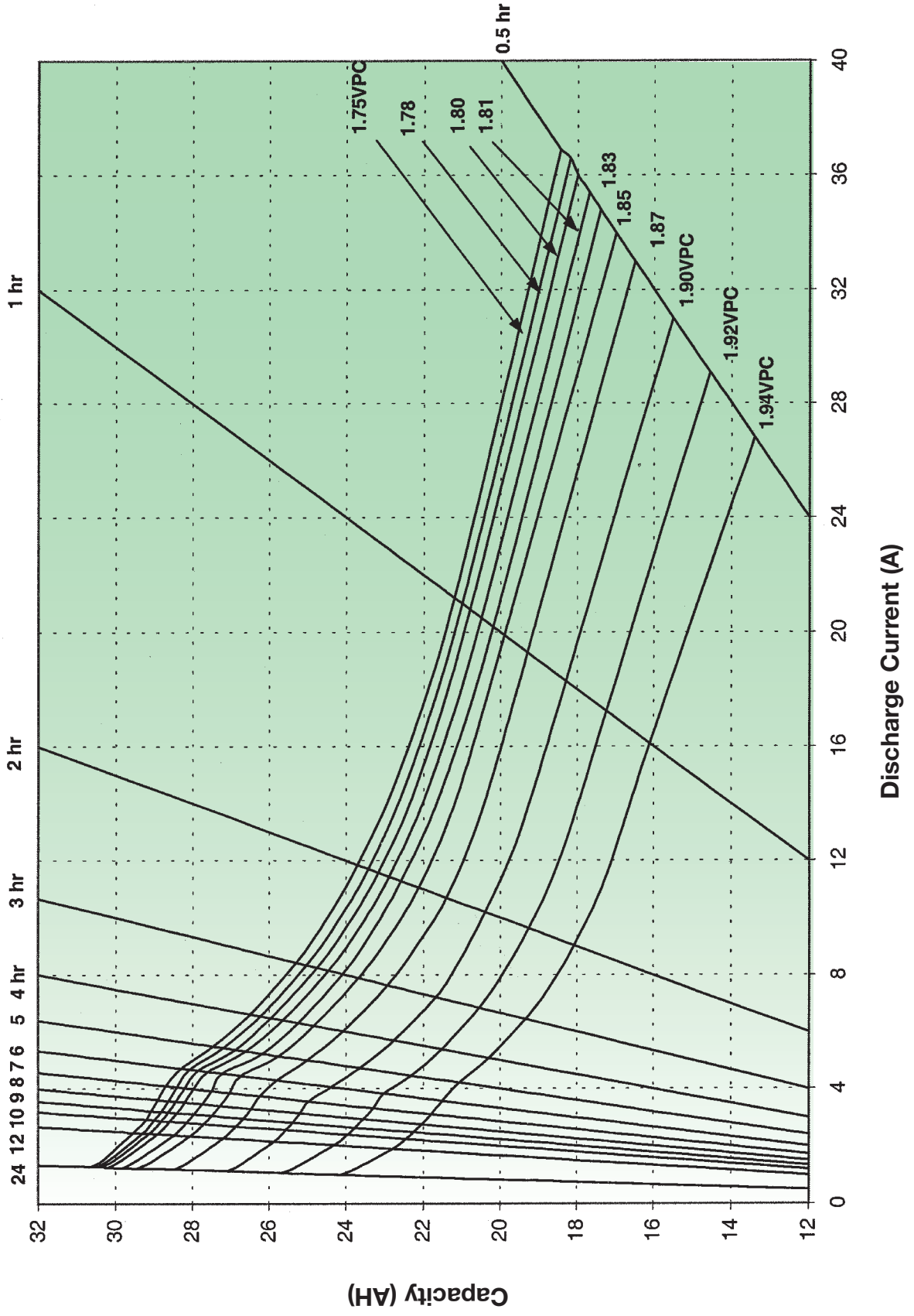
| 1.87 Final VPC | Model Number | Time | | | | | | | | | | | |
|----------------------|-----------------|-------|-------|-------|------|------|------|------|-------|-------|--------|-------|--------|
| | | 24 hr | 12 hr | 10 hr | 9 hr | 8 hr | 6 hr | 4 hr | 3 hr | 2 hr | 1.5 hr | 1 hr | 0.5 hr |
| | M12V30T | 2.3 | 4.5 | 5.4 | 5.9 | 6.6 | 8.4 | 11.7 | 14.9 | 20.9 | 26.6 | 37.4 | 64.4 |
| | M12V40(F) | 2.8 | 5.4 | 6.4 | 7.1 | 7.9 | 10.3 | 14.9 | 19.4 | 28.1 | 36.3 | 51.4 | 89.3 |
| | M12V45F | 3.9 | 7.2 | 8.5 | 9.4 | 10.4 | 13.5 | 18.8 | 23.8 | 33.3 | 42.2 | 59.0 | 94.8 |
| | M12V70(F) | 6.3 | 11.7 | 13.8 | 15.2 | 16.9 | 21.5 | 30.0 | 37.9 | 52.9 | 66.9 | 93.3 | 154.9 |
| | M12V90(F) | 7.1 | 13.7 | 16.2 | 17.9 | 20.1 | 25.6 | 36.0 | 45.8 | 64.3 | 81.9 | 115.1 | 181.7 |
| | M6V190(F) | 16.6 | 30.8 | 36.2 | 39.7 | 44.1 | 56.8 | 81.4 | 105.0 | 145.4 | 180.6 | 245.0 | 388.3 |

| 1.90 Final VPC | Model Number | Time | | | | | | | | | | | |
|----------------------|-----------------|-------|-------|-------|------|------|------|------|-------|-------|--------|-------|--------|
| | | 24 hr | 12 hr | 10 hr | 9 hr | 8 hr | 6 hr | 4 hr | 3 hr | 2 hr | 1.5 hr | 1 hr | 0.5 hr |
| | M12V30T | 2.2 | 4.3 | 5.1 | 5.7 | 6.3 | 8.0 | 11.2 | 14.3 | 20.1 | 25.6 | 36.0 | 61.2 |
| | M12V40(F) | 2.7 | 5.2 | 6.2 | 6.9 | 7.6 | 10.0 | 14.4 | 16.7 | 26.8 | 34.5 | 48.7 | 84.2 |
| | M12V45F | 3.7 | 6.9 | 8.1 | 9.0 | 10.0 | 12.7 | 17.8 | 22.6 | 31.6 | 40.1 | 56.1 | 89.3 |
| | M12V70(F) | 6.0 | 11.2 | 13.2 | 14.5 | 16.1 | 20.8 | 28.6 | 36.1 | 50.2 | 63.4 | 88.1 | 144.6 |
| | M12V90(F) | 6.8 | 13.0 | 15.4 | 17.0 | 19.0 | 24.4 | 34.2 | 43.5 | 60.9 | 77.4 | 108.4 | 169.9 |
| | M6V190(F) | 16.1 | 29.5 | 34.6 | 37.9 | 42.0 | 54.1 | 77.1 | 100.0 | 140.0 | 172.4 | 231.3 | 358.1 |

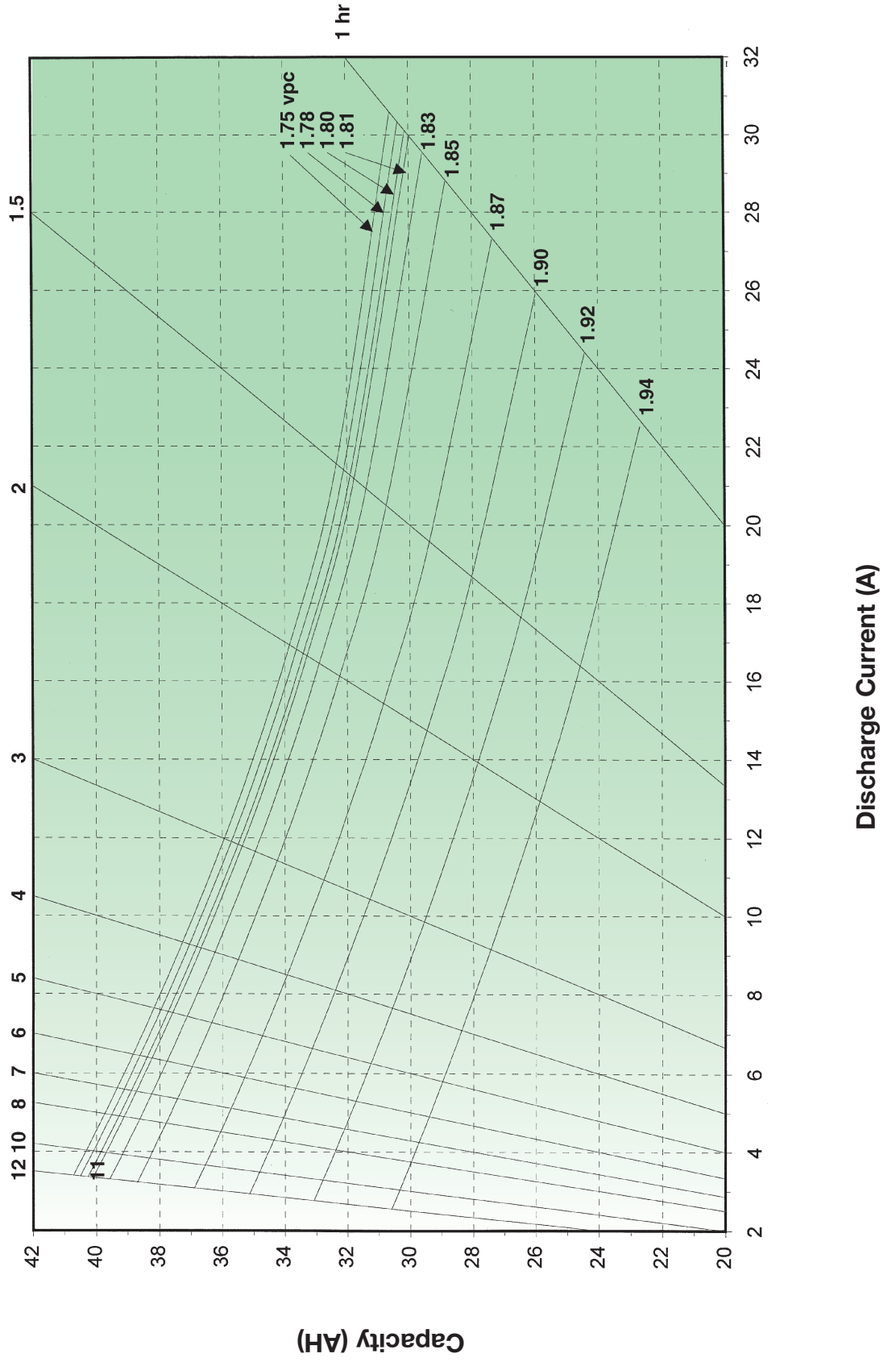
| 1.92 Final VPC | Model Number | Time | | | | | | | | | | | |
|----------------------|-----------------|-------|-------|-------|------|------|------|------|------|-------|--------|-------|--------|
| | | 24 hr | 12 hr | 10 hr | 9 hr | 8 hr | 6 hr | 4 hr | 3 hr | 2 hr | 1.5 hr | 1 hr | 0.5 hr |
| | M12V30T | 2.1 | 4.0 | 4.8 | 5.3 | 5.9 | 7.5 | 10.6 | 13.4 | 18.9 | 24.0 | 33.7 | 57.3 |
| | M12V40(F) | 2.6 | 5.0 | 6.0 | 6.6 | 7.3 | 9.5 | 13.8 | 17.8 | 25.5 | 32.7 | 45.9 | 79.3 |
| | M12V45F | 3.5 | 6.5 | 7.7 | 8.5 | 9.4 | 12.1 | 16.9 | 21.4 | 29.9 | 37.9 | 53.0 | 84.4 |
| | M12V70(F) | 5.7 | 10.6 | 12.5 | 13.7 | 15.2 | 19.7 | 27.1 | 34.2 | 47.4 | 59.7 | 82.7 | 134.7 |
| | M12V90(F) | 6.4 | 12.3 | 14.5 | 16.1 | 17.9 | 23.3 | 32.4 | 41.1 | 57.3 | 72.5 | 101.1 | 155.4 |
| | M6V190(F) | 15.4 | 28.2 | 33.0 | 36.2 | 40.1 | 51.5 | 73.4 | 95.0 | 132.0 | 162.4 | 217.4 | 296.7 |

| 1.94 Final VPC | Model Number | Time | | | | | | | | | | | |
|----------------------|-----------------|-------|-------|-------|------|------|------|------|------|-------|--------|-------|--------|
| | | 24 hr | 12 hr | 10 hr | 9 hr | 8 hr | 6 hr | 4 hr | 3 hr | 2 hr | 1.5 hr | 1 hr | 0.5 hr |
| | M12V30T | 1.9 | 3.8 | 4.5 | 5.0 | 5.6 | 7.1 | 9.9 | 12.6 | 17.6 | 22.4 | 31.3 | 53.0 |
| | M12V40(F) | 2.5 | 4.8 | 5.6 | 6.2 | 6.9 | 9.0 | 12.9 | 16.7 | 23.9 | 30.6 | 42.8 | 73.7 |
| | M12V45F | 3.3 | 6.2 | 7.3 | 8.0 | 8.9 | 11.6 | 16.1 | 20.3 | 28.3 | 35.8 | 49.9 | 79.6 |
| | M12V70(F) | 5.4 | 10.0 | 11.8 | 12.9 | 14.4 | 18.6 | 25.7 | 32.3 | 44.6 | 56.1 | 77.3 | 125.5 |
| | M12V90(F) | 6.1 | 11.6 | 13.7 | 15.1 | 16.8 | 21.8 | 30.8 | 38.8 | 53.7 | 67.7 | 93.8 | 144.3 |
| | M6V190(F) | 14.6 | 26.8 | 31.4 | 34.5 | 38.2 | 49.2 | 70.3 | 90.5 | 125.2 | 153.4 | 204.1 | 262.8 |

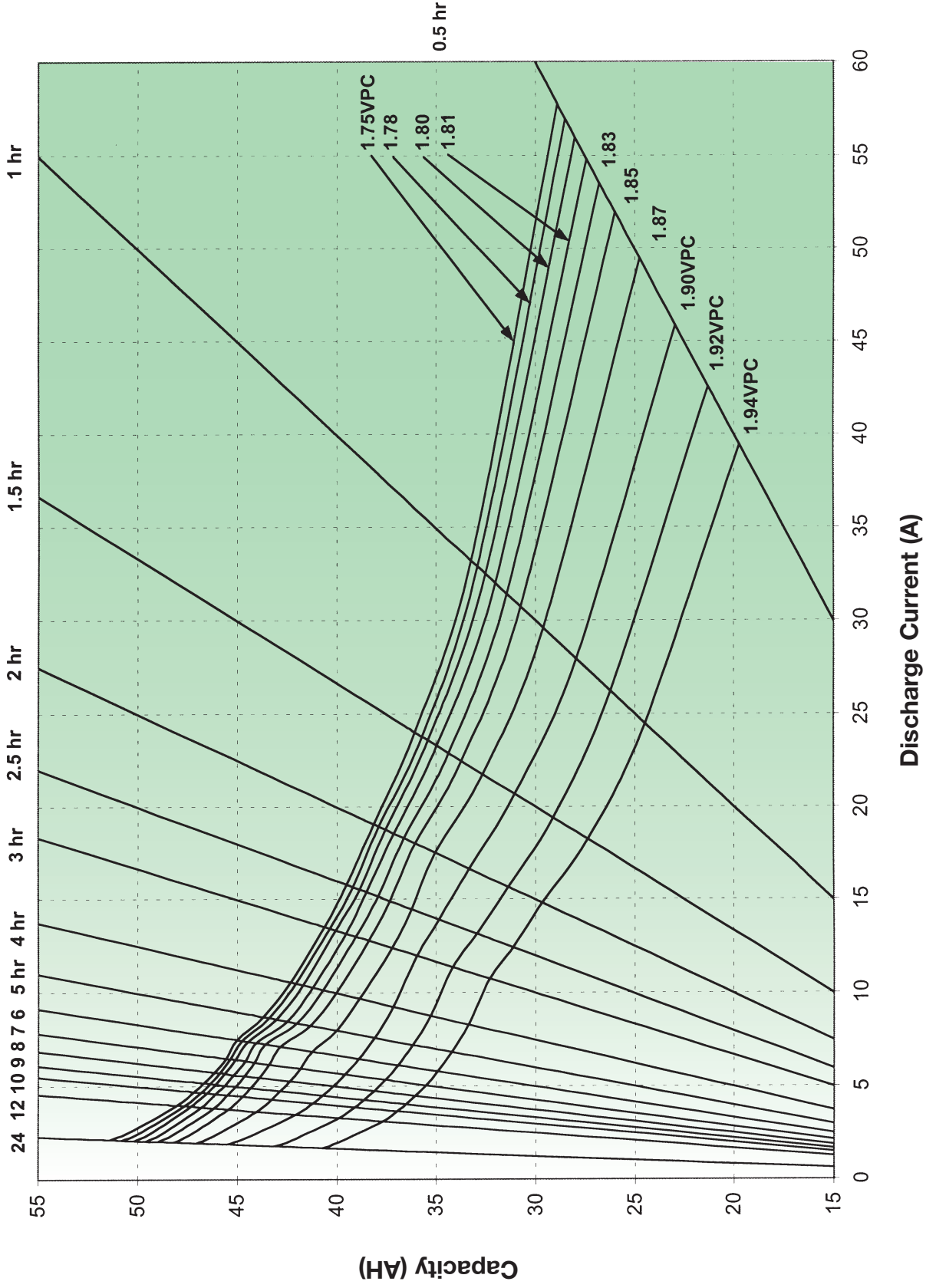
M12V30T - Performance Curves Amperes @ 25°C (77°F)



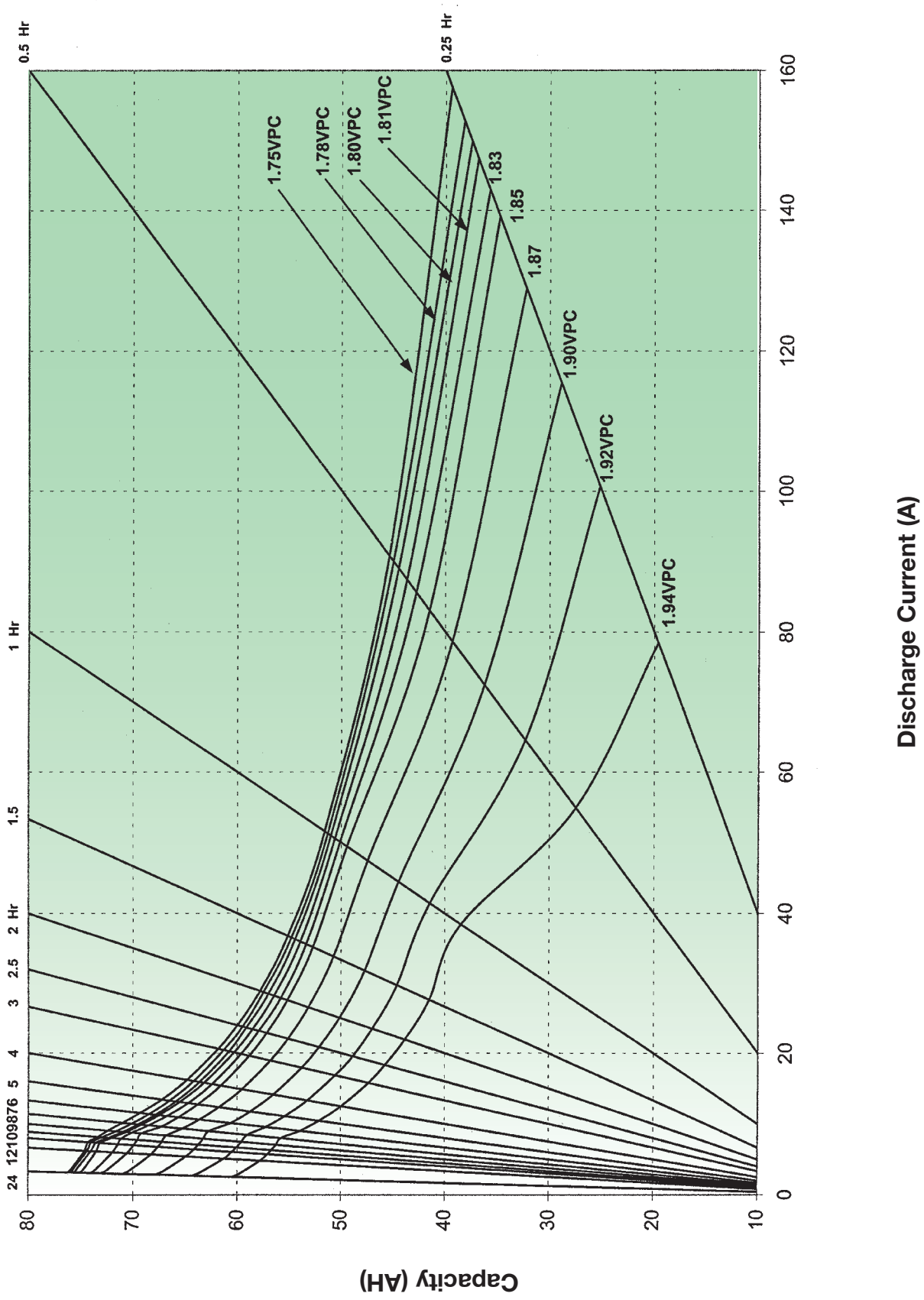
M12V40(F) - Performance Curves Amperes @ 25°C (77°F)



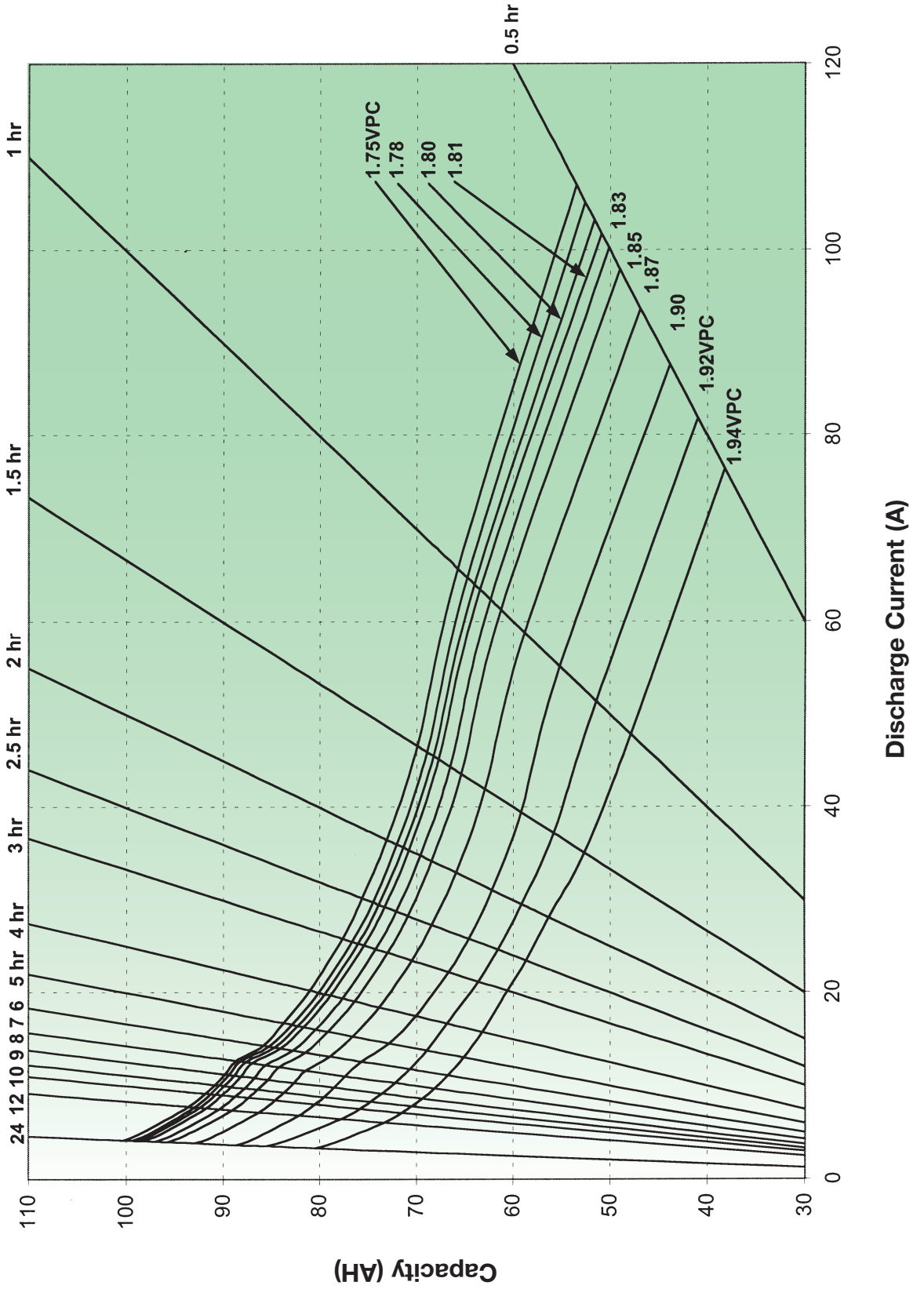
M12V45F - Performance Curves Amperes @ 25°C (77°F)



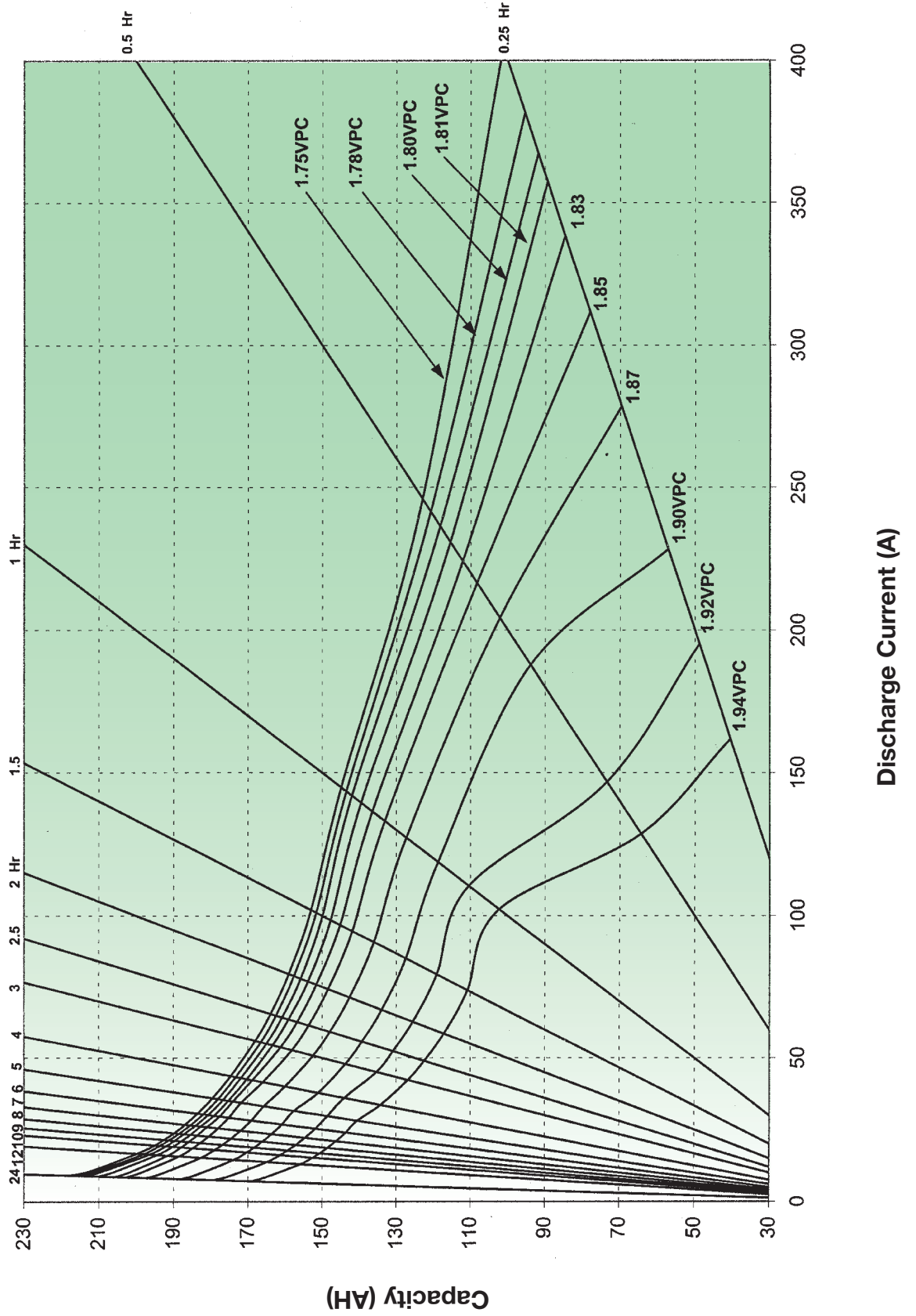
M12V70(F) - Performance Curves Amperes @ 25°C (77°F)



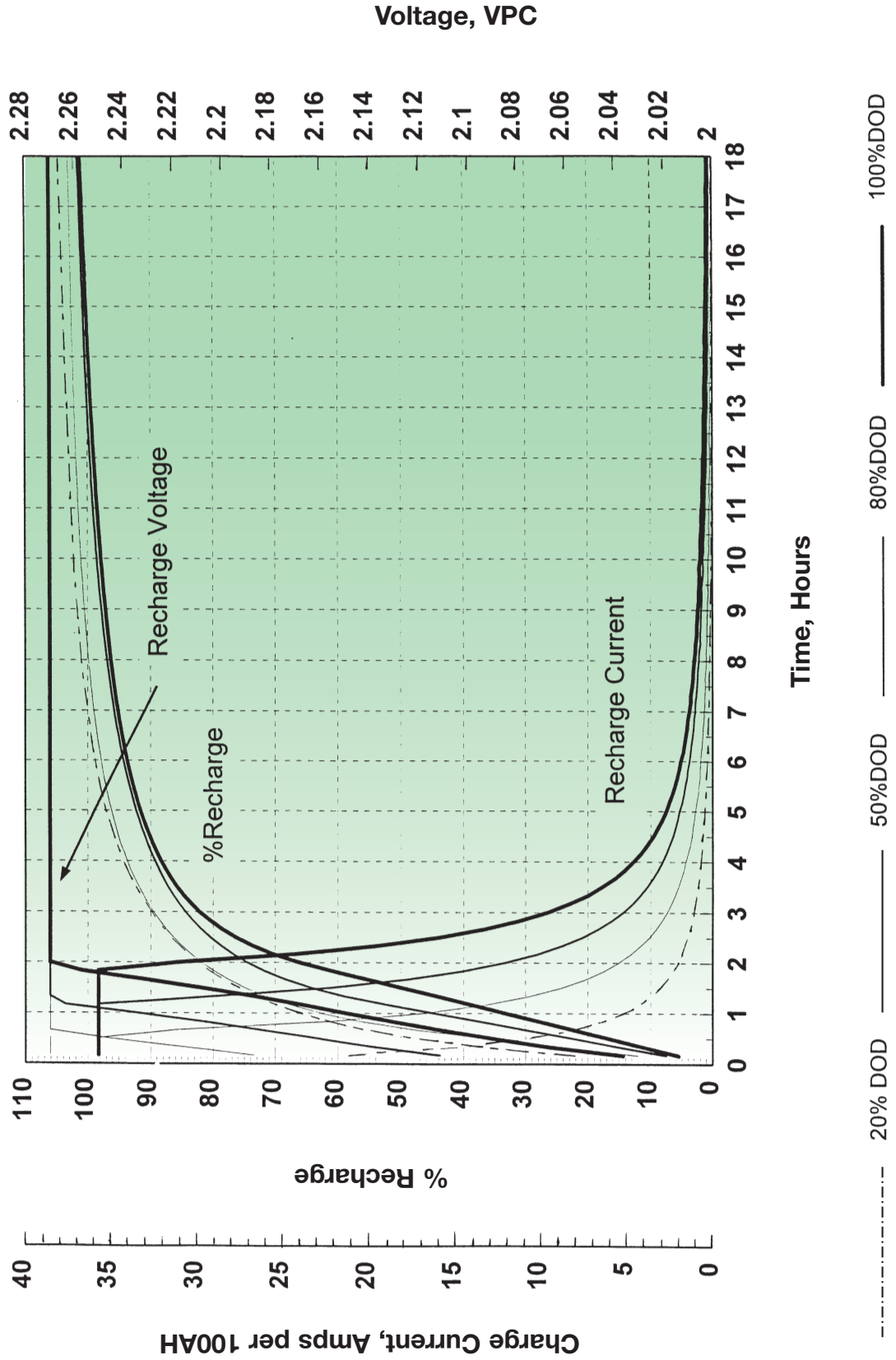
M12V90(F) - Performance Curves Amperes @ 25°C (77°F)



M6V190(F) - Performance Curves Amperes @ 25°C (77°F)



**Recharge Characterization
2.27 VPC Float @ 25°C (77°F)**



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