

DATA SHEET

grid | Xtreme VR

GREEN series

Application | Data Center

Cost-optimized pure lead technology (green series)

The HOPPECKE grid | Xtreme VR green series was developed with a high cost-benefit factor in mind to make the advantages of pure lead technology available to cost-conscious customers. The superior technical characteristics in both top and front terminal versions make them the preferred solution for UPS batteries in data center.

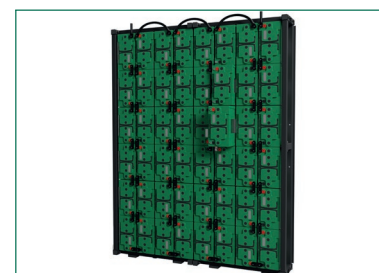
Unique dual-pole design - less service efforts

Dedicated pole contact points with touch protection allows for a precise impedance measurement making it quick and easy during installation and regular maintenance work.



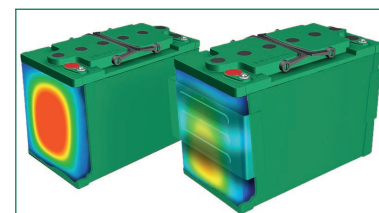
grid | XtremeStack – optimal use of space with a minimal footprint

The innovative stacking solution from HOPPECKE. Tailored for grid | Xtreme VR batteries in the top terminal variant to achieve maximum efficient use of space and power density (kW/m²) - with comparatively less installation effort and lower costs. grid | XtremeStack is both horizontally and vertically expandable and adapts flexibly to your needs. Suitable for seismic loads up to UBC Zone 1.



Patented. innovative safeguard-tec - lower operational costs

The innovative safeguard-tec for the top terminal types (optional) ensures dimensional stability throughout battery lifetime and at elevated ambient temperature. This allows installation in cabinets or on racks with limited demand for a continuous cost-intensive air-conditioning.



Proven ESS technology - reduced life cycle costs (TCO)

The result of Enhanced Stability Standard (ESS) technology is a proprietary improved resilience against thermal runaway, better charge acceptance and more even voltage behavior of the battery. This leads to a longer service life and reduced service costs: in summary optimized life cycle costs.





Construction

- High Performance Pure Lead grid electrodes for very good corrosion resistance also under **elevated operating temperature**
- Active mass is designed for **high discharge performance** with good cyclability
- High-quality and low resistance microporous glass fibre separators combined with **ESS technology** ensures optimum charge carrier exchange and improves a **long-term stability**
- Fully isolated** HOPPECKE connector system
- Innovative plastic-overmolded dual-pole design with an **access for impedance measurements**
- 100% tested self-regulating pressure relief valve per cell to prevent interaction between cells of a block with backfire inhibiting for increased **operational safety**
- UL94 V-0** rated flame retardant ABS-PC material (halogen-free) - high heat, shock and vibration resistant
- 15 years** design life and optimized aging behavior at high temperatures



Installation & Operation

- Suitable for standby parallel operation as well as partial cyclic applications
- Vertical as well as horizontal installation** on racks, in battery cabinets or in the grid | XtremeStack due to the robust folding handles integrated in the lid for easy assembly
- FT: real front terminals** for an ease of installation and maintenance - no additional connectors needed
- TT: safeguard-tec** optional available - **improves the overall performance** significantly
- Recommended charge float voltage: 2.285 Vpc @ 68°F (20°C) / 2.270 Vpc @ 77°F (25°C)
- Operating temperature range extremely wide from **-31°F to +122°F (-35°C to +50°C)**
- Storage time** extended up to **2 years** for maximum project deployment flexibility
- Reduced maintenance: no refilling of distilled water is required



Standards

- Designed to be compliant with international standard **IEC 60896-21/22**
- Usage in applications where longest life (15 years design life) and highest reliability are required. Therefore, classified as "Very Long Life" according to Eurobat Guide 20 15
- UL recognized** component
- UL94 V-0 rated flame retardant ABS-PC material (halogen-free)
- Classified as non-spillable battery and approved as non-hazardous cargo for land, sea and air transportation in accordance with the requirements of **ADR / RID, IMDG and IATA**
- Exclusively manufactured in HOPPECKE certified production facilities in accordance with **ISO 9001, ISO 14001, ISO 50001 and ISO 45001**



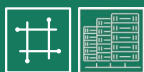
Type overview grid | Xtreme VR

Capacity, dimensions and weights

| MODEL | VOLTAGE [V] | CONSTANT POWER RATINGS IN WATTS PER CELL @ 77°F (25°C) | | | DIMENSIONS [inches] | | | WEIGHT | |
|-----------------------------|-------------|--|-----------------|-----------------|---------------------|-------|--------|--------|------|
| | | 1.67 VPC 5 MIN | 1.67 VPC 10 MIN | 1.67 VPC 15 MIN | LENGTH | WIDTH | HEIGHT | LBS | KG |
| grid Xtreme VR 122700 | 12 | 636.2 | 461.7 | 360.1 | 10.00 | 6.85 | 9.17 | 55.6 | 25.2 |
| grid Xtreme VR 123600 | 12 | 848.2 | 615.6 | 480.2 | 12.60 | 6.85 | 9.17 | 73.6 | 33.4 |
| grid Xtreme VR 124400 | 12 | 1008.8 | 756.6 | 601.3 | 14.13 | 6.85 | 11.14 | 100.8 | 45.7 |
| grid Xtreme VR 125100 | 12 | 1210.4 | 879.5 | 684.0 | 19.61 | 6.85 | 9.17 | 111.1 | 50.4 |
| grid Xtreme VR 12-1000 FT | 12 | 550.0 | 457.1 | 388.1 | 22.17 | 4.92 | 7.87 | 73.9 | 33.5 |
| grid Xtreme VR 12-1500 FT | 12 | 802.0 | 671.3 | 572.9 | 22.17 | 4.33 | 12.09 | 108.5 | 49.2 |
| grid Xtreme VR 12-1800 FT | 12 | 952.0 | 798.2 | 681.8 | 22.17 | 4.92 | 12.09 | 126.1 | 57.2 |
| grid Xtreme VR 12-2000 FT | 12 | 1019.8 | 854.8 | 730.1 | 22.17 | 4.92 | 12.68 | 132.3 | 60.0 |

| MODEL | TERMINAL | MAXIMUM DISCHARGE CURRENT [A] | SHORT CIRCUIT CURRENT (acc. IEC 60896-21) [A] | TERMINAL TYPE | TERMINAL TORQUE | FIG. |
|-----------------------------|----------|-------------------------------|---|---------------|---------------------|------|
| grid Xtreme VR 122700 | TOP | 1100 | 1410 | Insert (M8) | 133 in.-lbs (15 Nm) | A |
| grid Xtreme VR 123600 | TOP | 1100 | 1880 | Insert (M8) | 133 in.-lbs (15 Nm) | A |
| grid Xtreme VR 124400 | TOP | 1100 | 2710 | Insert (M8) | 133 in.-lbs (15 Nm) | A |
| grid Xtreme VR 125100 | TOP | 1100 | 3410 | Insert (M8) | 133 in.-lbs (15 Nm) | A |
| grid Xtreme VR 12-1000 FT | FRONT | 1000 | 1888 | Insert (M8) | 133 in.-lbs (15 Nm) | B |
| grid Xtreme VR 12-1500 FT | FRONT | 1000 | 2051 | Insert (M8) | 133 in.-lbs (15 Nm) | B |
| grid Xtreme VR 12-1800 FT | FRONT | 1000 | 2308 | Insert (M8) | 133 in.-lbs (15 Nm) | B |
| grid Xtreme VR 12-2000 FT | FRONT | 1000 | 2490 | Insert (M8) | 133 in.-lbs (15 Nm) | B |

*) Top terminal batteries: +0.12 inch in length and +0.2 inch in width using optional safeguard-tec



grid | Xtreme VR 122700

| END POINT VPC | CONSTANT POWER DISCHARGE RATINGS - WATTS PER CELL @ *77°F (+25°C) | | | | | | | | | | |
|---------------|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | OPERATING TIME TO END POINT VOLTAGE (IN MINUTES) | | | | | | | | | | |
| | 1 | 2 | 3 | 4 | 5 | 10 | 15 | 20 | 30 | 45 | 60 |
| 1.75 | 541.5 | 541.5 | 541.5 | 541.5 | 541.5 | 437.1 | 348.3 | 291.0 | 220.0 | 161.8 | 128.2 |
| 1.70 | 659.4 | 659.4 | 659.4 | 659.4 | 617.8 | 455.8 | 358.0 | 295.3 | 221.1 | 162.0 | 128.3 |
| 1.67 | 681.3 | 681.3 | 681.3 | 681.3 | 636.2 | 461.7 | 360.1 | 296.1 | 221.1 | 162.0 | 128.3 |
| 1.65 | 732.6 | 732.6 | 732.6 | 692.9 | 646.3 | 464.5 | 360.7 | 296.1 | 221.1 | 162.0 | 128.3 |
| 1.60 | 827.4 | 827.4 | 769.9 | 714.2 | 662.7 | 467.4 | 360.7 | 296.1 | 221.1 | 162.0 | 128.3 |

grid | Xtreme VR 123600

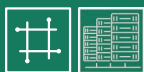
| END POINT VPC | CONSTANT POWER DISCHARGE RATINGS - WATTS PER CELL @ *77°F (+25°C) | | | | | | | | | | |
|---------------|---|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|
| | OPERATING TIME TO END POINT VOLTAGE (IN MINUTES) | | | | | | | | | | |
| | 1 | 2 | 3 | 4 | 5 | 10 | 15 | 20 | 30 | 45 | 60 |
| 1.75 | 722.0 | 722.0 | 722.0 | 722.0 | 722.0 | 582.8 | 464.4 | 388.0 | 293.3 | 215.7 | 171.0 |
| 1.70 | 879.2 | 879.2 | 879.2 | 879.2 | 823.7 | 607.7 | 477.3 | 393.7 | 294.8 | 216.0 | 171.0 |
| 1.67 | 908.3 | 908.3 | 908.3 | 908.3 | 848.2 | 615.6 | 480.2 | 394.8 | 294.8 | 216.0 | 171.0 |
| 1.65 | 976.8 | 976.8 | 976.8 | 923.9 | 861.7 | 619.3 | 480.9 | 394.8 | 294.8 | 216.0 | 171.0 |
| 1.60 | 1103.2 | 1103.2 | 1026.5 | 952.2 | 883.6 | 623.2 | 480.9 | 394.8 | 294.8 | 216.0 | 171.0 |

grid | Xtreme VR 124400

| END POINT VPC | CONSTANT POWER DISCHARGE RATINGS - WATTS PER CELL @ *77°F (+25°C) | | | | | | | | | | |
|---------------|---|--------|--------|--------|--------|-------|-------|-------|-------|-------|-------|
| | OPERATING TIME TO END POINT VOLTAGE (IN MINUTES) | | | | | | | | | | |
| | 1 | 2 | 3 | 4 | 5 | 10 | 15 | 20 | 30 | 45 | 60 |
| 1.75 | 966.3 | 966.3 | 966.3 | 966.3 | 907.0 | 702.1 | 578.7 | 491.0 | 380.3 | 286.7 | 232.0 |
| 1.70 | 1115.4 | 1115.4 | 1115.4 | 1042.9 | 971.4 | 740.1 | 597.0 | 502.1 | 381.6 | 287.3 | 232.3 |
| 1.67 | 1159.9 | 1159.9 | 1159.9 | 1082.1 | 1008.8 | 756.6 | 601.3 | 503.8 | 381.6 | 287.3 | 232.3 |
| 1.65 | 1262.9 | 1262.9 | 1180.5 | 1098.7 | 1023.1 | 761.5 | 603.4 | 503.9 | 381.6 | 287.3 | 232.3 |
| 1.60 | 1329.0 | 1329.0 | 1224.9 | 1134.6 | 1053.6 | 769.9 | 604.4 | 503.9 | 381.6 | 287.3 | 232.3 |

grid | Xtreme VR 125100

| END POINT VPC | CONSTANT POWER DISCHARGE RATINGS - WATTS PER CELL @ *77°F (+25°C) | | | | | | | | | | |
|---------------|---|--------|--------|--------|--------|-------|-------|-------|-------|-------|-------|
| | OPERATING TIME TO END POINT VOLTAGE (IN MINUTES) | | | | | | | | | | |
| | 1 | 2 | 3 | 4 | 5 | 10 | 15 | 20 | 30 | 45 | 60 |
| 1.75 | 1196.0 | 1196.0 | 1196.0 | 1196.0 | 1118.1 | 843.1 | 676.6 | 568.3 | 437.5 | 329.7 | 266.9 |
| 1.70 | 1354.8 | 1354.8 | 1354.8 | 1266.1 | 1184.0 | 874.1 | 684.0 | 569.3 | 439.7 | 330.0 | 267.1 |
| 1.67 | 1514.1 | 1514.1 | 1403.4 | 1301.9 | 1210.4 | 879.5 | 684.0 | 569.3 | 439.7 | 330.0 | 267.1 |
| 1.65 | 1560.3 | 1560.3 | 1435.1 | 1323.8 | 1225.5 | 881.4 | 684.0 | 569.3 | 439.7 | 330.0 | 267.1 |
| 1.60 | 1690.2 | 1690.2 | 1516.5 | 1375.0 | 1257.6 | 881.7 | 684.0 | 569.3 | 439.7 | 330.0 | 267.1 |



grid | Xtreme VR 12-1000 FT

| END POINT VPC | CONSTANT POWER DISCHARGE RATINGS - WATTS PER CELL @ *77°F (+25°C) | | | | | | | | | | |
|---------------|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | OPERATING TIME TO END POINT VOLTAGE (IN MINUTES) | | | | | | | | | | |
| | 1 | 2 | 3 | 4 | 5 | 10 | 15 | 20 | 30 | 45 | 60 |
| 1.75 | 450.8 | 450.8 | 450.8 | 450.8 | 450.8 | 411.5 | 358.5 | 314.1 | 250.6 | 192.2 | 156.5 |
| 1.70 | 541.7 | 541.7 | 541.7 | 541.7 | 524.0 | 444.2 | 379.4 | 329.4 | 258.6 | 196.0 | 158.5 |
| 1.67 | 573.5 | 573.5 | 573.5 | 573.5 | 550.0 | 457.1 | 388.1 | 334.9 | 260.6 | 196.8 | 158.8 |
| 1.65 | 620.5 | 620.5 | 620.5 | 592.7 | 567.1 | 465.7 | 392.1 | 337.0 | 261.1 | 196.8 | 158.8 |
| 1.60 | 682.2 | 682.2 | 655.7 | 628.8 | 602.1 | 484.5 | 397.5 | 337.9 | 261.1 | 196.8 | 158.8 |

grid | Xtreme VR 12-1500 FT

| END POINT VPC | CONSTANT POWER DISCHARGE RATINGS - WATTS PER CELL @ *77°F (+25°C) | | | | | | | | | | |
|---------------|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | OPERATING TIME TO END POINT VOLTAGE (IN MINUTES) | | | | | | | | | | |
| | 1 | 2 | 3 | 4 | 5 | 10 | 15 | 20 | 30 | 45 | 60 |
| 1.75 | 672.5 | 672.5 | 672.5 | 672.5 | 672.5 | 607.1 | 530.8 | 466.4 | 373.6 | 287.6 | 234.6 |
| 1.70 | 790.8 | 790.8 | 790.8 | 790.8 | 766.1 | 653.3 | 560.7 | 488.4 | 385.2 | 293.2 | 237.6 |
| 1.67 | 834.5 | 834.5 | 834.5 | 834.5 | 802.0 | 671.3 | 572.9 | 496.3 | 388.1 | 294.2 | 238.0 |
| 1.65 | 898.8 | 898.8 | 898.8 | 860.6 | 825.2 | 683.3 | 578.5 | 499.2 | 388.7 | 294.2 | 238.0 |
| 1.60 | 980.9 | 980.9 | 945.3 | 908.8 | 872.3 | 709.1 | 585.7 | 500.3 | 388.7 | 294.2 | 238.0 |

grid | Xtreme VR 12-1800 FT

| END POINT VPC | CONSTANT POWER DISCHARGE RATINGS - WATTS PER CELL @ *77°F (+25°C) | | | | | | | | | | |
|---------------|---|--------|--------|--------|--------|-------|-------|-------|-------|-------|-------|
| | OPERATING TIME TO END POINT VOLTAGE (IN MINUTES) | | | | | | | | | | |
| | 1 | 2 | 3 | 4 | 5 | 10 | 15 | 20 | 30 | 45 | 60 |
| 1.75 | 788.9 | 788.9 | 788.9 | 788.9 | 788.9 | 722.5 | 632.2 | 555.9 | 445.6 | 343.3 | 280.2 |
| 1.70 | 939.0 | 939.0 | 939.0 | 939.0 | 910.0 | 777.0 | 667.5 | 581.8 | 459.3 | 349.9 | 283.7 |
| 1.67 | 990.2 | 990.2 | 990.2 | 990.2 | 952.0 | 798.2 | 681.8 | 591.1 | 462.8 | 351.1 | 284.1 |
| 1.65 | 1049.2 | 1049.2 | 1049.2 | 1005.1 | 964.4 | 800.3 | 681.8 | 591.1 | 462.8 | 351.1 | 284.1 |
| 1.60 | 1161.0 | 1161.0 | 1119.5 | 1076.8 | 1034.1 | 842.4 | 696.8 | 595.8 | 463.3 | 351.1 | 284.1 |

grid | Xtreme VR 12-2000 FT

| END POINT VPC | CONSTANT POWER DISCHARGE RATINGS - WATTS PER CELL @ *77°F (+25°C) | | | | | | | | | | |
|---------------|---|--------|--------|--------|--------|-------|-------|-------|-------|-------|-------|
| | OPERATING TIME TO END POINT VOLTAGE (IN MINUTES) | | | | | | | | | | |
| | 1 | 2 | 3 | 4 | 5 | 10 | 15 | 20 | 30 | 45 | 60 |
| 1.75 | 844.9 | 844.9 | 844.9 | 844.9 | 844.9 | 773.7 | 676.9 | 595.1 | 477.0 | 367.5 | 299.9 |
| 1.70 | 1005.9 | 1005.9 | 1005.9 | 1005.9 | 974.7 | 832.2 | 714.8 | 623.0 | 491.7 | 374.5 | 303.7 |
| 1.67 | 1060.8 | 1060.8 | 1060.8 | 1060.8 | 1019.8 | 854.8 | 730.1 | 632.9 | 495.4 | 375.8 | 304.1 |
| 1.65 | 1141.7 | 1141.7 | 1141.7 | 1093.6 | 1049.1 | 869.9 | 737.2 | 636.6 | 496.2 | 375.9 | 304.1 |
| 1.60 | 1244.3 | 1244.3 | 1199.7 | 1153.8 | 1108.0 | 902.3 | 746.2 | 638.0 | 496.2 | 375.9 | 304.1 |

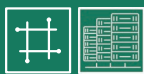


Fig. A

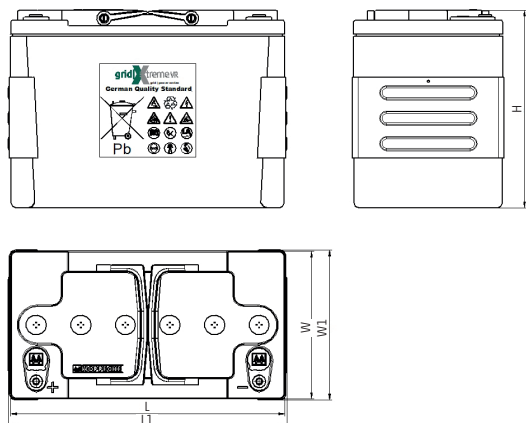
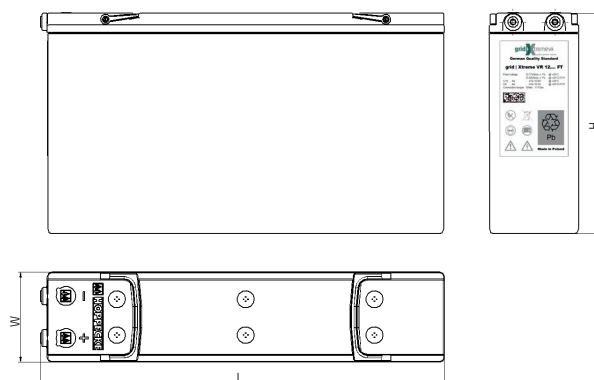


Fig. B



Tightening torque of terminal screw: 15 Nm - 133 lbf in

grid | Xtreme VR is versatile and may be used in other DC or AC industrial applications.

All of our cells and batteries should be installed, commissioned and operated in accordance with:

- HOPPECKE Operational Manual / Recommendations / Instructions
- International Standard IEC 62485-2 Safety requirements for secondary batteries and battery installations – Part 2: Stationary batteries
- Regional / National / Local Standards for the Environment

Optimal environmental compatibility - closed material cycle in certified recycling system

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