

## DATA SHEET

grid | Xtreme VR

**PURE series**

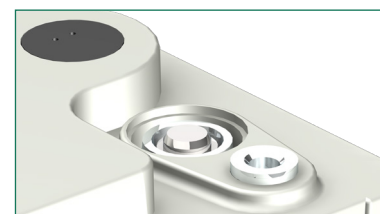
Application | Telecommunication

### The next generation of real pure lead batteries

By using high-purity lead (99.99%), HOPPECKE has deliberately opted for better corrosion resistance and thus an outstanding service life even at high ambient temperatures, such as in telecom applications.

#### 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.



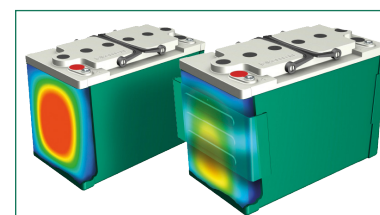
#### grid | XtremeStack - optimal use of space with a minimal footprint

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 energy density (kWh/m<sup>2</sup>) - 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: 2.3 Vpc @ 68°F (20°C) / 2.288 Vpc @ 77°F (25°C)
- Operating temperature range extremely wide from **-40°F to +131°F (-40°C to + 55°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]	AMPERE HOUR RATINGS @ 77°F (25°C) OPERATING TIME (IN HOURS) TO 1.75 VPC										DIMENSIONS [inches]			WEIGHT	
		1	2	3	4	5	6	7	8	10	LENGTH	WIDTH	HEIGHT	LBS	KG	
grid   Xtreme VR 12-80	12	65.0	72.8	76.8	79.4	81.3	82.8	84.1	85.1	87.0	10.00	6.85	9.17	56.9	25.8	
grid   Xtreme VR 12-110	12	83.4	93.9	99.0	102.4	105.0	108.1	111.0	113.3	116.8	12.60	6.85	9.17	71.4	32.4	
grid   Xtreme VR 12-150	12	117.7	135.6	144.7	150.8	155.3	158.8	161.6	163.9	167.8	14.13	6.85	11.14	102.1	46.3	
grid   Xtreme VR 12-170	12	136.1	153.3	163.3	172.2	178.0	182.1	185.1	187.5	190.8	19.61	6.85	9.17	113.3	51.4	
grid   Xtreme VR 12-100 FT 19"	12	73.8	84.4	88.6	92.7	95.3	97.2	98.5	99.8	101.1	15.91	4.33	10.39	66.6	30.2	
grid   Xtreme VR 12-100 FT 23"	12	79.1	90.5	95.0	99.4	102.2	104.2	105.6	106.7	108.4	22.17	4.92	7.87	74.7	33.9	
grid   Xtreme VR 12-150 FT	12	121.5	139.9	146.6	152.9	156.9	159.7	161.7	163.3	165.6	22.17	4.33	12.09	110.7	50.2	
grid   Xtreme VR 12-180 FT	12	143.8	164.5	172.7	180.7	185.8	189.4	192.1	194.1	197.1	22.17	4.92	12.09	126.5	57.4	
grid   Xtreme VR 12-200 FT	12	154.7	178.2	186.8	194.7	199.8	203.4	206.0	208.0	210.9	22.17	4.92	12.68	134.9	61.2	

MODEL	TERMINAL	BATTERY CAPACITY		MAXIMUM DISCHARGE CURRENT [A]	SHORT CIRCUIT CURRENT (IEC 60896-21) [A]	TERMINAL TYPE	TERMINAL TORQUE	FIG.
		C <sub>5</sub> TO 1.75 VPC @ 77°F (25°C)	C <sub>10</sub> TO 1.80 VPC @ 68°F (20°C)					
grid   Xtreme VR 12-80	TOP	85	82	1100	1439	Insert (M8)	133 in.-lbs (15 Nm)	A
grid   Xtreme VR 12-110	TOP	113	110	1100	2771	Insert (M8)	133 in.-lbs (15 Nm)	A
grid   Xtreme VR 12-150	TOP	164	158	1100	2766	Insert (M8)	133 in.-lbs (15 Nm)	A
grid   Xtreme VR 12-170	TOP	187	180	1100	3896	Insert (M8)	133 in.-lbs (15 Nm)	A
grid   Xtreme VR 12-100 FT 19"	FRONT	100	95	1000	1545	Insert (M8)	133 in.-lbs (15 Nm)	B
grid   Xtreme VR 12-100 FT 23"	FRONT	106	102	1000	1657	Insert (M8)	133 in.-lbs (15 Nm)	B
grid   Xtreme VR 12-150 FT	FRONT	163	156	1000	2372	Insert (M8)	133 in.-lbs (15 Nm)	B
grid   Xtreme VR 12-180 FT	FRONT	194	185	1000	3013	Insert (M8)	133 in.-lbs (15 Nm)	B
grid   Xtreme VR 12-200 FT	FRONT	208	199	1000	3078	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 12-80

END POINT VPC	CONSTANT CURRENT DISCHARGE RATINGS - AMPERES @ *77°F (+25°C)									
	OPERATING TIME TO END POINT VOLTAGE (IN HOURS)									
	1	2	3	4	5	6	7	8	10	
1.75	65.0	36.4	25.6	19.9	16.3	13.8	12.0	10.6	8.7	
1.80	63.4	35.7	25.2	19.5	16.0	13.6	11.8	10.5	8.6	
1.85	60.4	34.2	24.2	18.8	15.4	13.1	11.4	10.2	8.3	
1.90	55.0	31.4	22.3	17.4	14.3	12.2	10.6	9.5	7.8	

grid | Xtreme VR 12-110

END POINT VPC	CONSTANT CURRENT DISCHARGE RATINGS - AMPERES @ *77°F (+25°C)									
	OPERATING TIME TO END POINT VOLTAGE (IN HOURS)									
	1	2	3	4	5	6	7	8	10	
1.75	83.4	46.9	33.0	25.6	21.0	18.0	15.9	14.2	11.7	
1.80	81.8	46.1	32.5	25.2	20.7	17.7	15.6	13.9	11.5	
1.85	78.5	44.7	31.4	24.3	19.8	17.1	15.1	13.4	11.1	
1.90	71.6	41.1	29.0	22.4	18.3	15.8	13.9	12.4	10.2	

grid | Xtreme VR 12-150

END POINT VPC	CONSTANT CURRENT DISCHARGE RATINGS - AMPERES @ *77°F (+25°C)									
	OPERATING TIME TO END POINT VOLTAGE (IN HOURS)									
	1	2	3	4	5	6	7	8	10	
1.75	117.7	67.8	48.2	37.7	31.1	26.5	23.1	20.5	16.8	
1.80	114.5	66.4	47.2	36.9	30.4	25.9	22.6	20.1	16.5	
1.85	108.5	63.5	45.1	35.3	29.1	24.8	21.7	19.3	15.8	
1.90	99.4	58.6	41.5	32.6	26.9	22.9	20.0	17.8	14.6	

grid | Xtreme VR 12-170

END POINT VPC	CONSTANT CURRENT DISCHARGE RATINGS - AMPERES @ *77°F (+25°C)									
	OPERATING TIME TO END POINT VOLTAGE (IN HOURS)									
	1	2	3	4	5	6	7	8	10	
1.75	136.1	76.6	54.4	43.1	35.6	30.3	26.4	23.4	19.1	
1.80	133.2	75.4	53.5	42.3	35.0	29.8	26.0	23.0	18.8	
1.85	126.7	72.3	51.4	40.7	33.6	28.7	25.0	22.1	18.0	
1.90	115.5	65.9	47.5	37.6	31.1	26.5	23.1	20.4	16.6	



**grid | Xtreme VR 12-100 FT 19"**

END POINT VPC	CONSTANT CURRENT DISCHARGE RATINGS - AMPERES @ *77°F (+25°C)									
	OPERATING TIME TO END POINT VOLTAGE (IN HOURS)									
	1	2	3	4	5	6	7	8	10	
1.75	73.8	42.2	29.5	23.2	19.1	16.2	14.1	12.5	10.1	
1.80	70.5	40.9	29.0	22.7	18.7	15.9	13.8	12.2	9.9	
1.85	65.4	38.7	27.7	21.8	18.0	15.3	13.3	11.8	9.6	
1.90	58.3	34.9	25.2	19.9	16.5	14.0	12.2	10.8	8.8	

**grid | Xtreme VR 12-100 FT 23"**

END POINT VPC	CONSTANT CURRENT DISCHARGE RATINGS - AMPERES @ *77°F (+25°C)									
	OPERATING TIME TO END POINT VOLTAGE (IN HOURS)									
	1	2	3	4	5	6	7	8	10	
1.75	79.1	45.2	31.7	24.8	20.4	17.4	15.1	13.3	10.8	
1.80	75.6	43.8	31.1	24.4	20.0	17.0	14.8	13.1	10.6	
1.85	70.1	41.5	29.7	23.4	19.3	16.4	14.3	12.6	10.3	
1.90	62.5	37.4	27.0	21.3	17.7	15.1	13.1	11.6	9.5	

**grid | Xtreme VR 12-150 FT**

END POINT VPC	CONSTANT CURRENT DISCHARGE RATINGS - AMPERES @ *77°F (+25°C)									
	OPERATING TIME TO END POINT VOLTAGE (IN HOURS)									
	1	2	3	4	5	6	7	8	10	
1.75	121.5	69.9	48.9	38.2	31.4	26.6	23.1	20.4	16.6	
1.80	116.4	67.7	47.7	37.3	30.7	26.0	22.6	20.0	16.2	
1.85	108.8	64.6	45.8	36.0	29.6	25.2	21.9	19.4	15.7	
1.90	95.2	57.3	41.6	32.8	27.1	23.0	20.1	17.8	14.4	

**grid | Xtreme VR 12-180 FT**

END POINT VPC	CONSTANT CURRENT DISCHARGE RATINGS - AMPERES @ *77°F (+25°C)									
	OPERATING TIME TO END POINT VOLTAGE (IN HOURS)									
	1	2	3	4	5	6	7	8	10	
1.75	143.8	82.3	57.6	45.2	37.2	31.6	27.4	24.3	19.7	
1.80	137.5	79.7	56.5	44.3	36.4	30.9	26.9	23.8	19.3	
1.85	127.5	75.4	53.9	42.5	35.1	29.8	26.0	23.0	18.7	
1.90	113.7	68.0	49.1	38.8	32.1	27.4	23.8	21.1	17.2	

**grid | Xtreme VR 12-200 FT**

END POINT VPC	CONSTANT CURRENT DISCHARGE RATINGS - AMPERES @ *77°F (+25°C)									
	OPERATING TIME TO END POINT VOLTAGE (IN HOURS)									
	1	2	3	4	5	6	7	8	10	
1.75	154.7	89.1	62.3	48.7	40.0	33.9	29.4	26.0	21.1	
1.80	148.3	86.2	60.7	47.5	39.1	33.2	28.8	25.5	20.7	
1.85	137.0	81.3	57.7	45.3	37.3	31.7	27.6	24.4	19.8	
1.90	119.9	72.1	52.4	41.3	34.1	29.0	25.2	22.3	18.2	



Fig. A

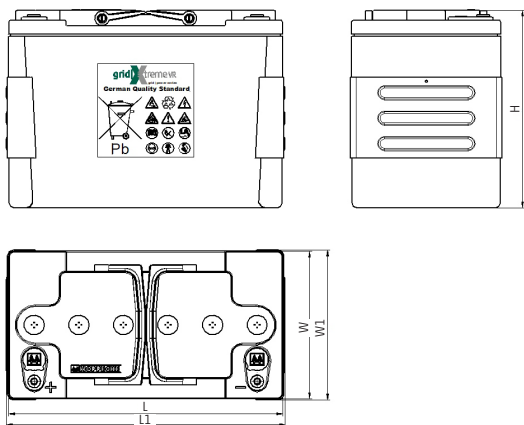
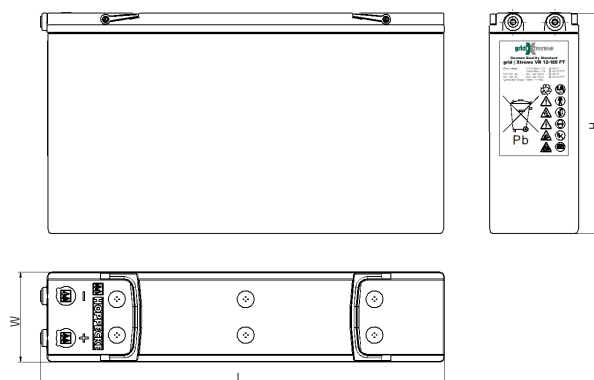


Fig. B



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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