

Product design features:

- EUROBAT specification Long Life
- Extremely high float life performance
- Low self discharge rates
- Low internal resistance
- Wide range of operating temperature -20°C to +55°C
- Compact design with high energy density
- ETSI Rack integration
- One-way valve regulated system with flame-arrestor
- Internal gas recombination efficiency 98% - 99%
- Low installation cost, maintenance free product
- Delivered ready for use
- Shock resistant ABS flame retardant container and lid
- Sealed for leak-free operation, inline automatic tested
- Female M8 brass terminals with no need for retightening
- Non-hazardous cargo for ground, sea and air transport
- Fully recyclable product

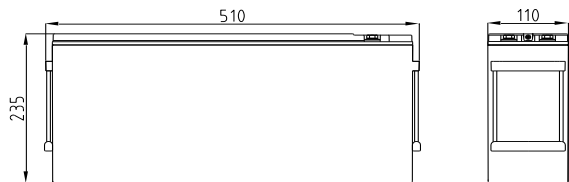
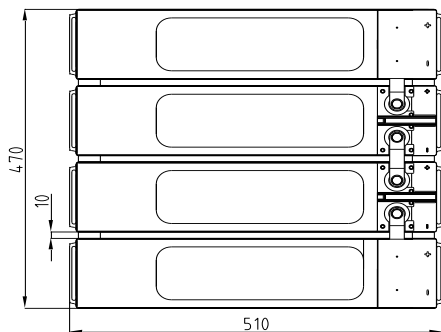
ISO 9001, ISO 14001, OHSAS 18001, AQAP 2110



All VRLA batteries are fully compliant with IEC 60 896 - 21/22, EN 60 896 - part 2, BS 6290 - part 4

Specifications:

- Nominal Voltage: 12V
- Terminal type: Front
- Grid alloy: Calcium/Tin lead alloy
- Plates: Flat Pasted
- Separators: AGM
- Active material: Very high purity lead
- Case and cover: ABS F.R. class V0
- Carrying Handles: Yes
- Terminal torque: 8 Nm
- Electrolyte: Sulphuric acid, Analytical grade purity
- Venting Valve: One way, self resealing,
 - Opening pressure 120 mBar
 - Resealing pressure 105 mBar
- Central degassing system: Available
- Terminal sealing: Mechanical + epoxy double sealing
- Connectors: Supplied as standard
- Shelf life: Up to 1 year



Mechanical Characteristics

	SI Units	US Units
Length	510 mm	20.1 inches
Width	110 mm	4.3 inches
Height	235 mm	9.3 inches
Typical Weight	31.3 kg	69.0 lbs
Terminal Torque	8.0 Nm	70.8 in.lbs

Performance characteristics:

- Charging voltage: Float 2.27 – 2.29 Vpc at 20°C
Boost charge 2.40 Vpc at 20°C
- Temperature compensation: -3mV/°C
- Short Circuit Current: 2145 A (IEC 60 896 -21/22)
- Internal resistance: 5.84mOhms (IEC 60 896 -21/22)
- Recommended End of Discharge voltage:
 - From 5 min to 1 hour: 1.65 Vpc
 - From 1 to 5 hours: 1.70 Vpc
 - From 5 to 8 hours: 1.75 Vpc
 - From 8 to 20 hours: 1.80 Vpc
- Self discharge: Less than 2.5% per month at 20°C
- Storability without recharging: Up to 6 months at 20°C

Performance and characteristics at different temperatures (capacity correction)

Discharge time	0 °C	5 °C	10 °C	15 °C	20 °C	25 °C	30 °C	35 °C	40 °C
From 5 to 59 minutes	0.77	0.83	0.87	0.92	0.96	1	1.02	1.05	1.06
From 1 to 24 hours	0.83	0.87	0.91	0.94	0.97	1	1.02	1.03	1.04

Battery capacity at constant current discharge (Ah) for battery 12MVR110F at 25°C

Uf, Vpc	5 min	15 min	30 min	1 h	2 h	3 h	4 h	5 h	6 h	8 h	10 h	20 h
1.60	25.7	46.2	57.8	69.2	82.4	89.0	94.3	97.8	101.0	106.4	108.4	112.5
1.65	24.7	44.8	56.7	67.3	80.9	87.5	92.9	96.8	100.3	105.6	107.4	111.5
1.70	22.9	43.1	54.6	65.6	79.3	86.1	91.8	95.3	99.0	104.7	106.7	110.5
1.75	20.3	40.6	51.5	64.1	77.4	84.6	90.0	93.6	97.7	103.7	106.2	109.4
1.80	17.6	37.8	47.3	62.0	75.6	83.0	88.7	92.4	96.1	102.4	105.0	108.5
1.85	15.5	33.3	44.5	59.8	74.6	81.7	87.3	91.0	94.5	100.8	103.8	107.6

Discharge performance at constant current discharge (A) for battery 12MVR110F at 25°C

Uf, Vpc	5 min	15 min	30 min	1 h	2 h	3 h	4 h	5 h	6 h	8 h	10 h	20 h
1.60	308.5	184.8	115.5	69.2	41.2	29.7	23.6	19.6	16.8	13.3	10.8	5.6
1.65	296.2	179.3	113.4	67.3	40.4	29.2	23.2	19.4	16.7	13.2	10.7	5.6
1.70	274.3	172.2	109.2	65.6	39.6	28.7	22.9	19.1	16.5	13.1	10.7	5.5
1.75	243.8	162.5	102.9	64.1	38.7	28.2	22.5	18.7	16.3	13.0	10.6	5.5
1.80	210.7	151.2	94.5	62.0	37.8	27.7	22.2	18.5	16.0	12.8	10.5	5.4
1.85	185.5	133.1	89.0	59.8	37.3	27.2	21.8	18.2	15.8	12.6	10.4	5.4

Discharge performance at constant power discharge (W per cell) for battery 12MVR110F at 25°C

Uf, Vpc	5 min	15 min	30 min	1 h	2 h	3 h	4 h	5 h	6 h	8 h	10 h	20 h
1.60	551.6	347.3	221.2	134.2	81.3	59.0	47.1	39.3	33.7	26.8	21.8	11.4
1.65	527.8	336.1	216.9	130.6	79.6	58.0	46.3	38.8	33.5	26.6	21.6	11.3
1.70	485.7	321.7	208.2	126.6	78.0	56.9	45.6	38.2	33.1	26.4	21.59	11.13
1.75	427.3	302.0	195.2	123.9	76.0	55.8	44.8	37.3	32.7	26.2	21.4	11.12
1.80	364.8	279.4	178.0	119.5	74.1	54.7	44.1	36.9	32.0	25.7	21.2	10.9
1.85	317.7	243.3	166.7	114.9	73.0	53.7	43.3	36.2	31.6	25.3	21.0	10.9