



Introduction

Pressure tolerant systems are those which the individual components are embedded in flexible polymers. The assemblies are cast with a special vacuum technology enabling the components to work in a deep-sea environment.

In deep water, undersea systems are exposed to extremely high pressures. Conventional systems with components housed in pressure chambers are typically large, heavy, and expensive for any depths past a few hundred meters due to the requirements of strength, seal tightness, and corrosion resistance.

Kraken Power has developed an alternative to traditional pressure housings with its own pressure-tolerant technology. Pressure-tolerant systems (PTS) work in a manner similar to pressure-compensated systems in which the components are exposed to hydrostatic pressure. However, the compensation liquid is replaced by incompressible elastomers such as silicone or polyurethane. As a result, the volume compensation requirement by liquid is no longer necessary, i.e. an oil compensator is no longer required. A proprietary vacuum technique enables the encapsulating polymers to be used at depths to 6,000 meters.

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Benefits

- Reliable, rugged design
- High energy density
- No oil filling, no seals
- Modular system
- Fast chargeable
- Diverse connector options
- Integrated Battery Management System (BMS)
- Data Interfaces: CANbus, (RS232/RS485/RS422)
- Battery Chargers fitting your application

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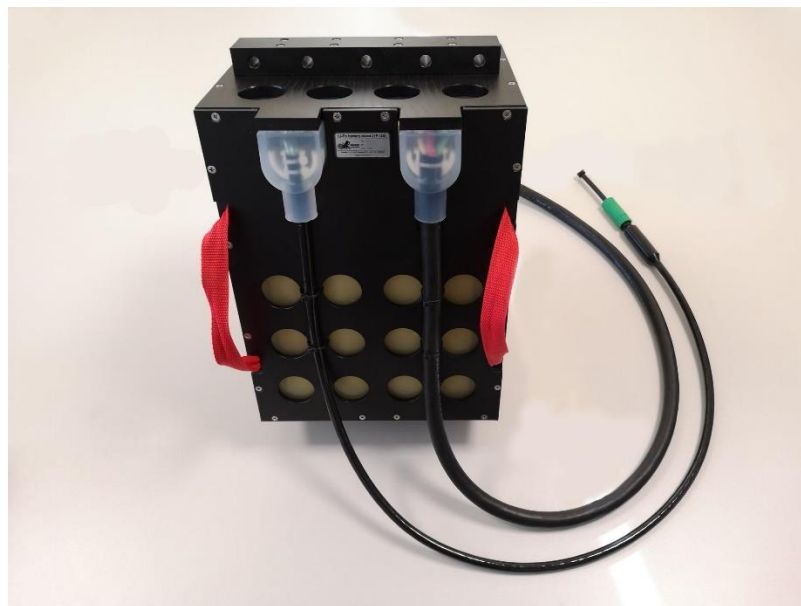
SeaPower™ Pressure Tolerant Battery Block B50V52 and B100V26

The Battery System Standard



Pressure tolerant battery system block B50V52 and B100V26 - 2.6kWh

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Single cell block for a battery system block B50V52 and B100V26 2.6kWh

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SeaPower™ Pressure Tolerant Battery Block B50V52 and B100V26 Specifications

Kraken Battery System Block B50V52 (B100V26) - Performance Characteristics	
Operation Voltage	51.8V (25.5V) nominal
Minimum Voltage	39V (21V) EOD (BMS threshold 3.0V)
Highest Voltage	58.8V (29.4)
Energy	2.6kWh
Peak current	100A (10 seconds)
Continuous discharge current	80A
Continuous charge current	20A
Charge time	3 -5 hours
Storage conditions	40°C to 60°C) less than 1 week 25°C to 40°C less than 3 months -20°C to 25°C less than 1 year @60±25% R.H. SOC 50 ±5%
Working conditions	Charging: 10°C to 45°C Discharging: -10°C to 55°C @60±25% R.H.
Life cycles	≥ 800 Cycles, 80% Retention
Life calendar	≥ 10 Years, 80% Retention
Life storage	≥ 10 Years, 80% Retention, SOC 50 ±5%
Power connector	Subconn BH8F/M (red/blue)

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Kraken Battery B50V52 - Physical Characteristics	
Dimensions LxWxH of the Battery pack	306 x 276 x 234 mm
Weight in air	31kg
Weight in water @surface	13kg (in fresh water)
Depth rating	6,000m WD

Kraken Battery B50V52 – BMS Protection (Slave)	
Slave BMS	Build-in
Temperature Monitoring	Build in
Cell Voltage Monitoring	Build-in
Hard-fuse	Build in
Digital Bus-Interface	Build in
Interlock-Line	Build in

Kraken Battery B50V52 – BMS Protection (Master)	
MasterBMS	Build-in
Charge Management	Build in
Charge Power SSD	Build-in
Main Power SSD	Build-in
Main Power Diodes	Build-in
Main Protection Fuse	Build in
Digital Bus-Interface	Build in

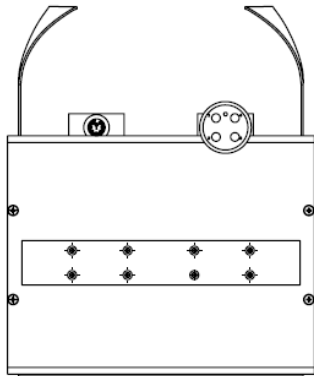
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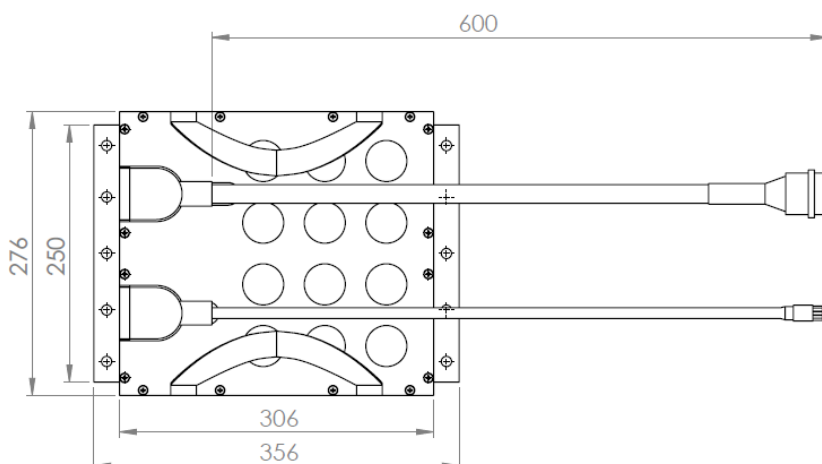
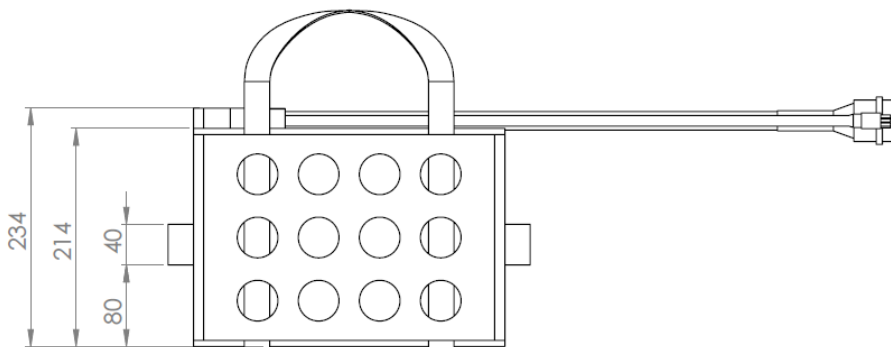
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SeaPower™ Pressure Tolerant Battery Block B50V52 and B100V26 Dimensions



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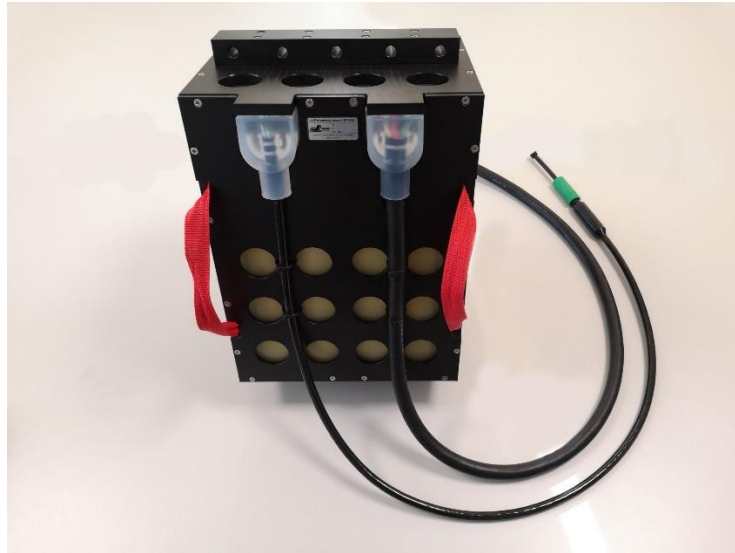
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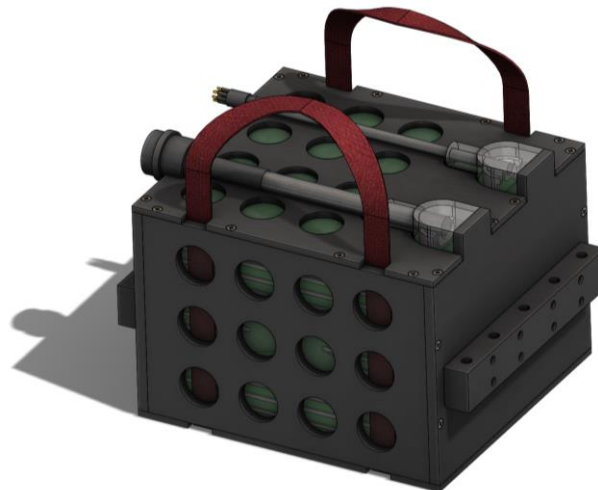
SeaPower™ Pressure Tolerant Battery with Master BMS BM50V52 and BM100V26 – 2.6kWh

THE SINGLE BATTERY STANDARD



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Single cell block for a battery system block BM50V52 and BM100V26 2.6kWh



Single cell block for a battery system block BM50V52 and BM100V26 2.6kWh

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SeaPower™ Pressure Tolerant Battery with Master BM50V52 and BM100V26

Specifications

Kraken Battery BM50V52 (BM100V26) - Performance Characteristics	
Operation Voltage	51.8V (25.5V) nominal
Minimum Voltage	39V (21V) EOD (BMS threshold 3.0V)
Highest Voltage	58.8V (29.4)
Energy	2.6kWh
Peak current	100A (10 seconds)
Continuous discharge current	80A
Continuous charge current	20A
Charge time	3 -5 hours
Storage conditions	40°C to 60°C) less than 1 week 25°C to 40°C less than 3 months -20°C to 25°C less than 1 year @60±25% R.H. SOC 50 ±5%
Working conditions	Charging: 10°C to 45°C Discharging: -10°C to 55°C @60±25% R.H.
Life cycles	≥ 800 Cycles, 80% Retention
Life calendar	≥ 10 Years, 80% Retention
Life storage	≥ 10 Years, 80% Retention, SOC 50 ±5%
Power connector	Subconn BH8F/M (red/blue)

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Kraken Battery BM50V52 (BM100V26) - Physical Characteristics	
Dimensions LxWxH of the Battery pack	362 x 276 x 234 mm
Weight in air	34kg
Weight in water @surface	13.5kg (in fresh water)
Depth rating	6,000m WD

Kraken Battery BM50V52 (BM100V26) – BMS Protection	
Temperature Monitoring	Build in
Cell Voltage Monitoring	Build-in
Hard-fuse	Build in
Charge Management	Build in
Charge Power SSD	Build-in
Main Power SSD	Build-in
Main Power Diodes	Build-in
Main Protection Fuse	Build in
Digital Bus-Interface	Build in

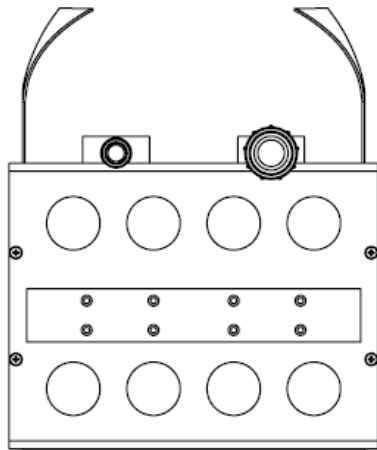
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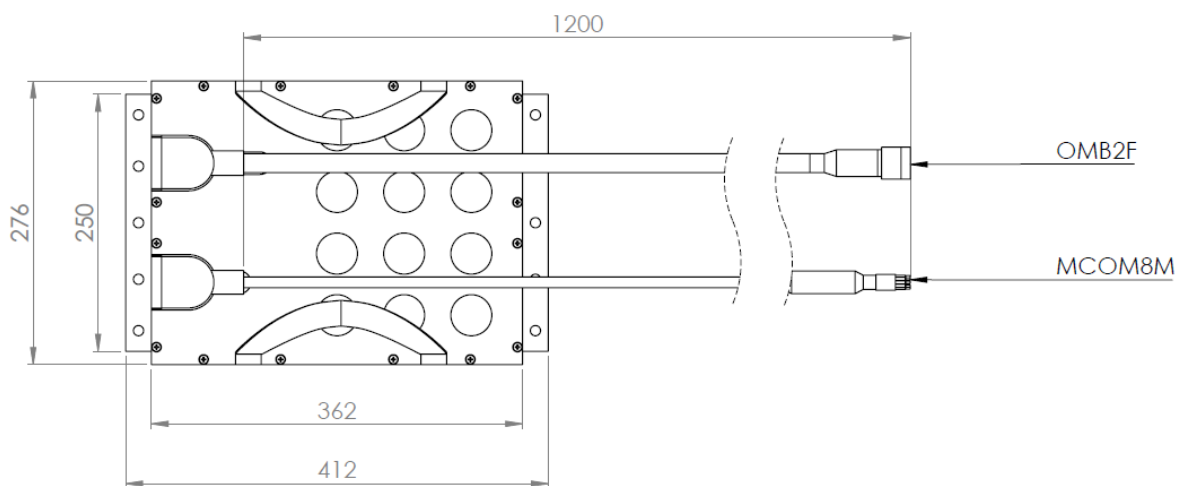
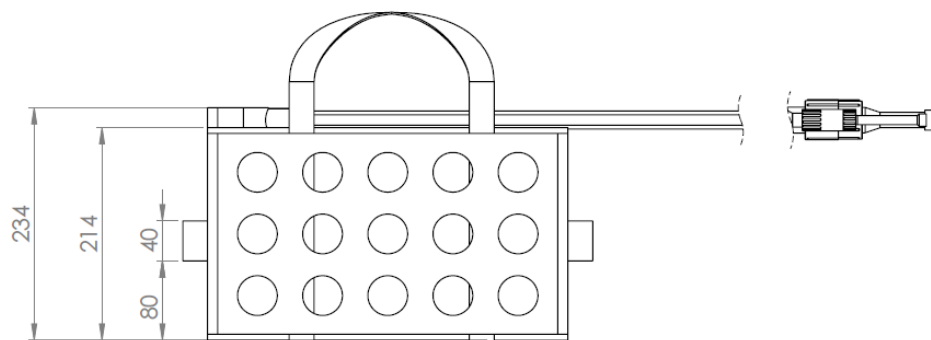
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SeaPower™ Battery Block with Master BM50V52 and BM100V26 Dimensions



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Configurations

B50V52 (1P14S) Battery without Master

B - Battery		
V - Volt	V	52 Volt
Ah	Ah	50 Ah

BM50V52 (1P14S) Battery with integrated Master

B - Battery		
M - Master		
V - Volt	V	52 Volt
Ah	Ah	50 Ah

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B100V24 (2P7S) Battery without Master

B - Battery		
V - Volt	V	24 Volt
Ah	Ah	100 Ah

BM100V24 (2P7S) Battery with integrated Master

B - Battery		
M - Master		
V - Volt	V	24 Volt
Ah	Ah	100 Ah

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