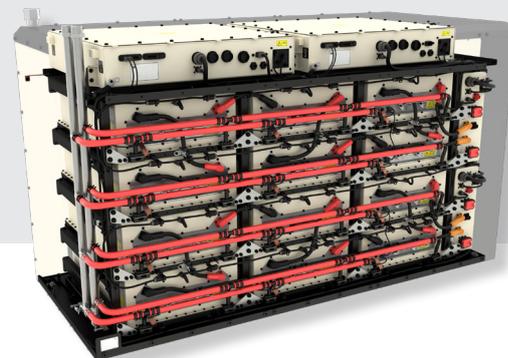


# CAT® MARINE BATTERY SYSTEM

## MODULE TECHNICAL SPECIFICATIONS



CATEGORY	REQUIREMENTS	UNITS	MAIN BATTERY
Critical Performance	Energy (Nameplate)	kWh	28.7
	Discharge Rate (Continuous)	C	1
	Charge Rate (Continuous)	C	1
	Pulse C rate (30 seconds)	C	1.5
	Cell Chemistry		LFP
	Cell Type		Prismatic
	Recommended State of Charge Range	%	10% ~ 90%
	Targeted Life	Yrs	*10 years
	Battery Module Voltage (min)	Volts DC	109
	Battery Module Voltage (nom)	Volts DC	125
	Battery Module Voltage (max)	Volts DC	142
	Energy Density	Wh/l	219
		Wh/kg	131.8
Environmental	Operating Ambient Temperature	°C	0 to +40
	Relative Humidity	%	0-50
Dimensions	W x H x D	mm	588 x 251 x 888
	Weight	kg	220
Certification	Maritime Classification Societies		ABS & DNV (Pending)
	Cybersecurity (MCS)		(Pending)
	CE		(Pending)
	IEC		Compliant

\*Life based on typical vessel use

Specifications provided are preliminary and subject to change.

# CAT® MARINE BATTERY SYSTEM

## PACK TECHNICAL SPECIFICATIONS



CATEGORY	REQUIREMENTS	UNITS	MAIN BATTERY
Packaging	IP Rating		IP65
	Cooling (Air or Liquid)		Liquid
	Coolant type	WEG	50/50 or 30/70
	Coolant flow (Per module)	L/min	3.6 - 5 LPM
	Coolant Temperature	°C	20 +/-5
	Maintenance (Front clearance)	mm	900
	Interface connections (Location)		Front
Battery System	Battery Management System (BMS)		Included
	DC Pre-charge Circuit		Included
	Control Power	Volts DC	24
	Emergency Stop		Included
	Communication		Modbus
System Voltage	(6 modules)	Volts DC	654-852
	(7 modules)	Volts DC	763-994
	(8 modules)	Volts DC	872-1136
	(9 modules)	Volts DC	981-1278
	(10 modules)	Volts DC	1090-1420

Specifications provided are preliminary and subject to change.

# CAT® MARINE BATTERY SYSTEM

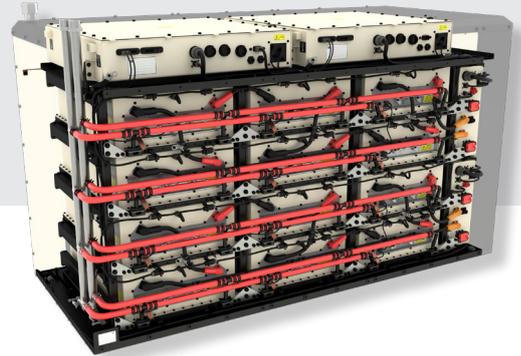


Image shown may not reflect actual configuration.

The Cat® Marine Battery System is designed to meet the evolving needs of marine operations. Built for flexibility and seamless integration, it combines advanced safety features, intelligent system monitoring, and efficient thermal management to deliver reliable performance in demanding environments. With a focus on adaptability and protection, it's engineered to support a wide range of marine applications with confidence.

## Functionality

The Cat Marine Battery System is engineered to meet the demands of a wide range of marine applications. With multiple rack options and support for multiple DC voltage operating ranges, the Cat Marine Battery System offers flexibility and scalability required to integrate seamlessly across platforms.

## Safety

The Cat Marine Battery System features a multi-layer safety concept:

- » The battery system uses lithium iron phosphate (LFP) cells, recognized for their high thermal runaway and ignition temperature thresholds, improving overall safety.
- » Thermal protection is provided through a Linear Heat Detection (LHD) wire which disconnects a battery string if internal module temperatures exceed safe limits.

The Cat Battery Management System (BMS) provides reliable and safe operation. Caterpillar's proprietary battery technology maintains system stability. Cell and module temperatures are constantly monitored through the BMS, and the system will automatically disconnect a battery string if any abnormal conditions are detected.

## System Integration

The Cat Marine Battery System features Ethernet RJ45 communication interfaces, configurable in both ring and star topologies, enabling seamless and efficient integration into a wide range of marine systems. Additionally, it supports a flexible DC bus voltage range from 654 to 1420 volts, accommodating various vessel power requirements and system architectures.

## Certification

Cat Marine Battery System is pending DNV and ABS certification for use in marine applications and compliance with cybersecurity standards. Furthermore, the Cat Marine Battery System is IEC compliant and pending CE certification. Additional MCS approvals to be provided based on customer requests.

## Cooling

- » The liquid cooling system provides optimal operating temperatures for the battery modules and cells. Coolant leak detection is provided at the pack level. The modules are IP65 rated, ensuring that no liquid from other modules can enter and contact the internal battery cells.
- » The BMS will issue a leak detection alert in the event of a coolant leak. Continuous temperature monitoring and control will ensure the system remains within safe operating limits.

Specifications provided are preliminary and subject to change.