

# Lengthy trips or sailing the world

<b>Your ship:</b>	60 ft sailing yacht
<b>Use:</b>	Extended trips and maybe even a circumnavigation
<b>Details:</b>	All luxury onboard facilities

## Your sailing profile

You make long sailing trips and have plans for a trip around the world. All extended voyages require careful preparation and route planning, plus the right equipment onboard. Your electric system needs a great deal of attention, not least because you will be using many consumers throughout the vessel and have specific power facilities such as the navigation system to cater for. Issues of redundancy are also a vital consideration should a calamity occur. By intelligently separating consumers, for example forward, amidships and aft, you ensure maximum continuity and know that any possible disruption need not totally shut everything down at the same time.

## Your onboard consumers include:

### DC consumers:

description	total x capacity x hour	daily consumption
Navigation and deck lighting	4 x 25 Watt x 8 hour	= 0.80 kWh
Navigation and communication equipment	6 x 40 Watt x 12 hour	= 2,88 kWh
Interior lighting	15 x 15 Watt x 4 hour	= 0.90 kWh
Water, shower, toilet and bilge pumps	8 x 150 Watt x 0.2 hour	= 0.24 kWh
Water maker	1 x 300 Watt x 4 hour	= 1,20 kWh
Electric winches	3 x 2000 Watt x 0.2 hour	= 1,20 kWh
Refrigerator	1 x 80 Watt x 8hour	= 0.64 kWh
Freezer	1 x 80 Watt x 8 hour	= 0.64 kWh
Several small consumers	12 x 20 Watt x 4hour	= 0.96 kWh





# FAR-OFF DESTINATIONS

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## AC consumers:

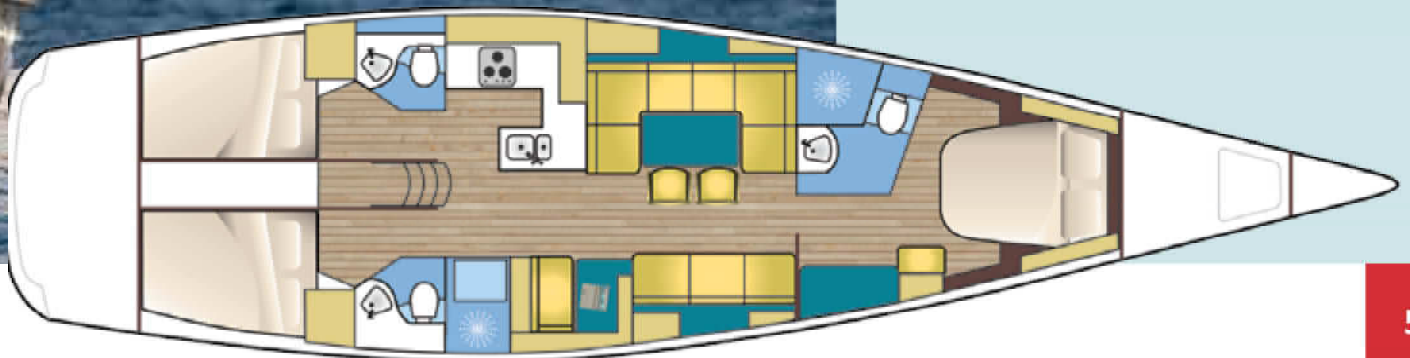
Microwave/oven	1 x 2000 Watt x 0.2 hour	= 0.40 kWh
Audio system	1 x 250 Watt x 2 hour	= 0.50 kWh
TV	2 x 150 Watt x 2 hour	= 0.60 kWh
Espresso machine	1 x 1200 Watt x 0.2 hour	= 0.24 kWh
Laptop	1 x 30 Watt x 2 hour	= 0.06 kWh
Household appliances	4 x 200 Watt x 0.2 hour	= 0.16 kWh
Electric cooking	1 x 2500 Watt x 0 hour	= 0 kWh
Washing machine	1 x 2500 Watt x 0 hour	= 0 kWh
Dishwasher	1 x 1000 Watt x 0 hour	= 0 kWh

(only on generator, shore power or engine)

**Total DC and AC consumers: = 11.4 kWh**

## The Basics

- All Mastervolt systems have been designed for faultless operation and complete user friendliness. Their reliability is unprecedented and on the rare occasions when something does go wrong our worldwide service network will quickly find a solution.
- You charge your batteries with heavy alternators on the main engine and via the generator. You are completely independent from shore power.
- The maximum AC capacity is 2000 Watt for the microwave/oven; however, you will only use this for a relatively short period of time.
- Cable conduits can be less wide with the decentralised MasterBus system so you have more space.
- You have a high-quality advanced navigation and communication station that includes GPS, marine telephone, plotter and speedometer, wind meter and depth gauges. This needs to operate seamlessly in all circumstances, taking into account possible dips in the power supply due to the use of electric winches and/or bowthruster.
- You require optimum ease of operation; centrally located.



# The best system choice

## Batteries: 12 x Mastervolt MVSV 750 Ah

- The total of DC and AC consumers requires around 11.4 kWh per day. During engine operation the batteries are charged by the alternator, in this case 2.6 kWh with one hour sailing with a 24 V 110 A alternator. This makes the daily use 8.8 kWh. Totally discharging the batteries is not advisable so opt for a maximum of 50% discharge, i.e. at least 18 kWh.
- Taking the different equipment into account we chose a 24 V system.
- Required battery capacity:  $18.00 \text{ Wh} / 24 \text{ V} = 750 \text{ Ah}$ .
- Extra batteries: 3 x Mastervolt AGM 24 V/225 Ah for bowthruster, main engine starter battery and the navigation system.
- A separate battery for your navigation & communication guarantees a stable power supply for your sensitive equipment.

## Optional: Lithium Ion batteries

- If you want to save weight and space, opt for three Mastervolt Lithium Ion 24 V batteries. This will be 450 kg less weight and 120-litres less volume. The Lithium Ion batteries of 4.3 kWh each are discharged to 70% with a use of 9 kWh. This means they will last much longer and you always have back-up capacity.

## Generator/battery charger/inverter: 1 x Mastervolt GPX 24 V

- Revolutionary integrated generator, battery charger and inverter.
- Extra: 1 x ChargeMaster 24/70 battery charger for the bowthruster, starter and navigation set.

## Other system components

- 1 x Mastervolt 24 V 110 A alternator.
- 1 x MasterView System touch screen control panel for monitoring and controlling your entire system from one central location.
- 1 x Mastervolt Mass GI 3.5 kVA/16 A. Lightweight isolation transformer for safely using shore power.
- 1 x Mastervolt shore connection set 2+PE, 16 A/230 V.
- 1 x Mastervolt Shore Fix, 16 A/30 mA earth leakage shore power.
- 10 x Mastervolt Digital DC 10x10A each with 10 outputs for all possible DC consumers forward, amidships and aft.
- 5 x Mastervolt DC Distribution with 4 fuses, one especially for the navigation system, three for consumers forward, amidships and aft, and one for the electric winches and water maker.
- 1 x Mastervolt MasterShunt 500 battery monitor.
- Mastervolt MasterBus cables.
- Several different input devices are used for local operation of your system, such as the Switch Input 4 PCB and the Digital Input.

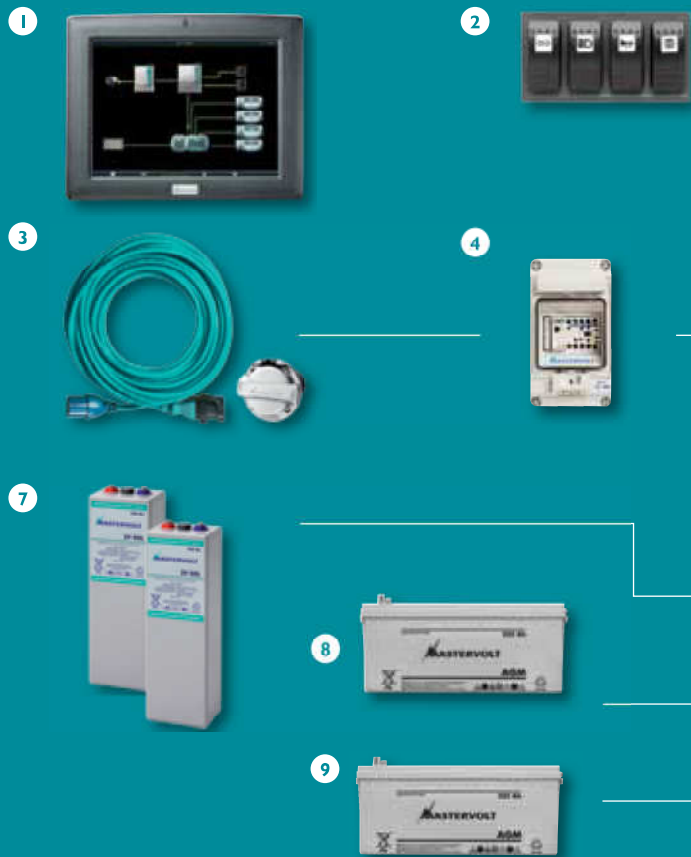




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- 1 MasterView System
- 2 Switch Input 4 PCB
- 3 Shore power connection
- 4 Earth leakage shore power
- 5 Mass GI isolation transformer
- 6 GPX
- 7 Service battery 48 V
- 8 Bowthruster battery 24 V
- 9 Starter battery main engine 24 V
- 10 ChargeMaster battery charger
- 11 Navigation set 24 V
- 12 MasterShunt, DC Distribution, Digital DC
- 13 DC consumers forward
- 14 DC Distribution
- 15 DC consumers amidships
- 16 DC consumers aft
- 17 Dynamo



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